HEADQUARTERS
UNITED STATES EUROPEAN COMMAND
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DIRECTIVE
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PLANS AND POLICY

USEUCOM Requirements Generation System

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1. **Summary**. This document outlines policies, procedures, and responsibilities for USEUCOM Directorates and Components to interface with the Requirements Generation System. The Requirements Generation System focuses on the development, review, validation, and approval of Mission Need Statements (MNSs), Capstone Requirements Documents (CRDs) and Operational Requirements Documents (ORDs).

2. **Applicability**.

   a. This DIRECTIVE is a USEUCOM publication that establishes policy, assigns responsibilities, and directs actions for all Directorates within USEUCOM, and Components, Agencies, and Activities supporting or associated with USEUCOM. The terms Requirements Generation System and Requirements Generation Process are to be considered interchangeably in this document, and refer to any external or internal matters related to the Requirements Generation System/Process.

   b. This directive also applies, in general, to agencies preparing and submitting requirements in accordance with CJCSI 3170.01, DODD 5000.1, and DOD Regulation 5000.2-R. These instructions do not preclude the need to refer to the basic DOD 5000 series documents for guidance and direction on defense acquisition.

3. **Internal Control Systems**. This publication is not subject to requirements of AR 11-2.

4. **Suggested Improvements**. The Director for USEUCOM Plans and Policy (ECJ5) is the proponent for this publication. If you have any recommended changes forward them to ECJ5 Strategy, Resources, and Congressional Affairs Division (ECJ5-S).

5. **References**:

   a. CJCSI 3170.01 (10 August 99), Requirements Generation System.

   b. DOD Directive 5000.1, Change 1, 15 March 1996, "Defense Acquisition."

   c. DOD Regulation 5000.2-R, Change 4, 15 March 1996, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs."
   d. Title 10, United States Code, sections 151, 153, 154, 155, 161, 162, 163, 166, 167, 181, 2223, 3013, 5013, and 8013.

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e. CJCS Instruction 3010.02, Date, "Joint Vision Master Implementation Plan."

f. CJCS Instruction 3137.01, 22 February 1996, "The Joint Warfighting Capabilities Assessment Process."

g. CJCS Instruction 3451.01, 1 April 1999, "CINC Field Assessment."

h. CJCS Instruction 5123.01, 2 May 1997, "Charter of the Joint Requirements Oversight Council."

i. CJCS Instruction 6212.01A, 30 June 1995, "Compatibility, Interoperability, and Integration of Command, Control, Communications, Computers, and Intelligence Systems."

j. DOD Directive 8000.1, 27 October 1992, "Defense Information Management (IM) Program."

k. DOD Directive 4630.5, 12 November 1992, " Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems."

l. DOD Directive 4630.8, 18 November 1992, " Procedures for Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems."

m. DOD Directive 5100.1, "Functions of the Department of Defense, and its Major Components, " September 25, 1987

n. DOD Directive 5100.3, "Support of the Headquarters of Unified, specified, and Subordinate Joint Commands, " November 1, 1988 with Administrative Reissuance Incorporating through Change 2, October 21, 1993.

o. DOD Electronic Desk Reference Set, "Defense Acquisition Deskbook."

p. JROCM 032-97, 31 March 1997, "JROC Administrative Guide."

q. C4ISR Architecture Framework, Version 2.0, 18 December 1997.

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6. **General**.

   a. Mission Need. The Requirements Generation System produces information for decision-makers on the projected **mission needs** of the warfighter.

      (1) These mission needs are first defined in broad operational terms in a **Mission Need Statement** (MNS) document.

      (2) Subsequently, the needs expressed in the MNS are then developed into requirements by the Requirements Generation Process in the forms of **Capstone Requirements Documents** (CRD) (if required) and/or **Operational Requirements Documents** (ORD).

      (3) CRDs provide ORD development guidance through validated performance based overarching capabilities for a mission area that forms a system of systems or family of systems.

      (4) ORDs translate the MNS and (if applicable) CRD requirements into detailed, refined performance capabilities and characteristics of the proposed system.

   b. Staffing. Once a document enters the formal Joint Requirements Oversight Council (JROC) review process, it will be staffed to all Services, CINCs, Joint Staff and appropriate DOD agencies for review and comment. This is typically how and when the EUCOM staff and components become involved in the process, by reviewing the document for the CINC.

      (1) These documents will be reviewed initially at the O-6 level and then at the Flag (GO/FO) level.

      (2) O-6 level staffing does not necessarily result in the final Service position.

      (3) Flag-level endorsement of O-6 level comments is neither required nor desired.

   c. CINC-Generated Requirements. USEUCOM directorates, components, or joint task force (JTF) headquarters may at times have a requirement to address an "internal" mission need or requirement. Should the requirement/mission need not require or cannot be addressed by a service component specific solution, two (2) options are available to the originator to address the mission need (CINC-generated MNS or CFA):

      (1) CINC-generated MNS.

         (a) The CINCs will forward all CINC-generated MNSs to the JROC for initial O-6 level review as outlined in Appendix B.

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(b) The preferred method for CINC MNS generation is for the CINCs to identify their mission needs to the responsible Service component commander or appropriate DOD agency (see DoD Directive 5100.1 & 5100.3). The component or agency will then coordinate the definition and documentation activities through their sponsoring Services or agency requirements system and keep the CINCs apprised of the status of the MNS.

(c) JROC approval. If the O-6 review recommends a Joint Potential Designator (JPD) of "joint interest" or "joint," then the MNS will complete flag level review and will be forwarded to the JROC for validation and approval as outlined in Appendices B and C.

(d) CINC approval. If the O-6 Review recommends a JPD of "independent," then the MNSs will be returned to the sponsoring CINC for validation and approval. Upon approval, the CINC will forward the MNS to the appropriate Service or agency designated office responsible for the requirements generation system, which will forward the MNS to the component acquisition executive.

(2) CINC Field Assessment (CFA). The purpose of a CFA is to provide a deployed/employed CINC a rapid, tailored analysis in response to an emergent threat capability and to meet urgent priority information needs about fielded US force or system capabilities and/or vulnerabilities involving more than one service. The CFA process and submission criteria are described in CJCSI 3451.01 (CINC Field Assessment), and will be addressed in a future EUCOM Directive (TBP).

7. **Responsibilities**.

a. ECJ5 is the office of primary responsibility for coordinating and compiling Component and USEUCOM staff reviews/inputs/comments, and developing positions on Requirements Generation System documents and issues as they relate to USEUCOM.

(1) Authority to approve all Requirements Generation System "Flag-level" reviews/inputs/comments has been delegated to the Director, ECJ5 (Plans and Policy), for transmission to the Joint Staff.

(2) Authority to approve all Requirements Generation System "O6-level" reviews/inputs/comments has been delegated to the Division Chief, ECJ5-S (Strategy, Resources, and Congressional Affairs), by the Director, ECJ5, for transmission to the Joint Staff.

b. ECJ5-S responsibilities include:

(1) Provide a central point for timely receipt, dissemination, staffing, coordination, and processing of Requirements Generation System documents.

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(a) All requirements documents and issues are received via SIPRNET from the Joint Staff J8 Requirements and Acquisition Division (J8/RAD) by the ECJ5-S Action Officer (AO).

(b) The ECJ5-S Action Officer disseminates via SIPRNET (or ULAN as appropriate), the requirements document or issue to the USEUCOM staff and Components for review. An internal suspense is provided in order to meet the Joint Staff (J8/RAD) suspense.

(c) The USEUCOM staff and Components review the document/issue and prepare their respective input/comments for submission. The ECJ5-S Action Officer coordinates this action.

(d) The ECJ5-S Action Officer collects and compiles all input/comments and prepares the memorandum for the consolidated USEUCOM reply to the Joint Staff (J8/RAD).

(2) Continuously coordinate Requirements Generation System issues and actions with the Joint Staff J8/RAD Action Officer to ensure congruency and accuracy.

(3) Validate and approve HQ EUCOM generated MNSs that have been returned from the JROC O-6 review as having a JPD of "independent." Upon approval, forward the MNS to the appropriate Service or agency designated office responsible for the requirements generation system, which will forward the MNS to the component acquisition.

   c. Component Commanders, USEUCOM Directors and appropriate chiefs of special staff agencies are responsible for:

(1) Designating a point of contact and/or action officer to handle the USEUCOM staffing of all requirements documents.

(2) Monitoring programs within their respective functional areas and providing expertise and delegating authority, as required, to develop an official USEUCOM position on Requirements Generation System documents and issues.

   d. Requirements Action Officer responsibilities:

(1) Be familiar with and track Requirements Generation System documents and issues affecting their Components / Staff Directorate.

(2) Articulate their respective Component's / Staff Directorate's policy, requirements, and shortfalls in compliance with USEUCOM policy and CINC guidance.

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(3) Provide responses, sanctioned by the appropriate Directorate / Component Commander, on Requirements Generation System documents and issues within established timelines.

(4) Be familiar with the key processes, milestones, and timelines in the Requirements Generation System as they pertain to USEUCOM.

e. ECJ2 responsibilities. The Joint Staff J2 and Director DIA are responsible for threat validation and intelligence certification of all requirements documents. Therefore, the Joint Staff will typically request ECJ2 support and participation in these certifications.   Intelligence related comments may be forwarded to both ECJ5-S and directly to J2/DIA.

f. ECJ6 responsibilities. The Joint Staff J6 is responsible for conducting Interoperability Certification on all requirements documents, and reviewing and assessing C4 requirements in C4I Support Plans (C4ISPs).   Therefore, the Joint Staff will typically request ECJ6 support and participation in these certifications/reviews. C4 related comments may be forwarded to both ECJ5-S and directly to the JS J6/DISA.

8. **Policies and Procedures**.

a. Policies.

(1) Policy References. Policies and procedures for the requirements generation system (for developing, reviewing, validating, and approving MNSs, CRDs, and ORDs) are derived from CJCSI 3170.01, DOD Directive (DODD) 5000.1, and DOD Regulation 5000.2-R.

(2) DOD Policy.

(a) Authority. The Chairman of the Joint Chiefs of Staff assesses military requirements for defense acquisition programs and represents the CINCs with respect to their operational requirements. The JROC facilitates the execution of these responsibilities.

(b) Services' Role. The Services are responsible for organizing, supplying, equipping (including research and development), training, administering, and related functions in order to meet the current and future operational requirements of the unified commands. They are also charged with eliminating duplication through effective cooperation and coordination with the other Services and DOD agencies.

(c) CJCS Role. The Chairman of the Joint Chiefs of Staff, assisted by the Vice Chairman and other members of the Joint Chiefs of Staff, establishes and publishes policies and procedures governing the requirements generation system.

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       (d) VCJCS Role. The Vice Chairman, assisted by the Joint Requirements Oversight Council (JROC), will oversee the requirements generation system in accordance with DOD 5000 series documents and policies and procedures contained in CJCSI 3170.01 to ensure the responsibilities of the Chairman under title 10, United States Code, are fulfilled.

     (3) USEUCOM Policy.

       (a) EUCOM policies are driven by DOD directives, regulations, and CJCSI 3170.01.

       (b) ECJ5-S responds to the Joint Staff (J8) requests for document reviews in a timely and effective manner.

       (c) All EUCOM staff directorates and components are expected to comply with the ECJ5-S tasking (SSRS) to accurately and effectively review requirements documents in accordance with established guidelines.

  b. Procedures.

     (1) Upon electronic receipt from the Joint Staff J8/RAD (via SIPRNET) of the JROC Staffing Memorandum (JROCSM), tasking the review (O6 or Flag-level) of a requirements document (MNS/CRD/ORD), ECJ5-S will forward a staff package of documents (electronically) to all applicable EUCOM staff and Components. Typically this packet is sent to the Executive Officers for the respective EUCOM staff elements and specifically identified Action Officers for the Components. This staffing packet will include the following electronic files:

       (a) A Staff Summary Routing Slip (SSRS) outlining the tasking, signed by the ECJ5-S Division Chief.

       (b) A copy of the JROCSM.

       (c) A copy of the file containing the document to be reviewed.

       (d) A copy of the file that contains previous world-wide staffing comments (if applicable).

       (e) A copy of the file that contains the previous HQ USEUCOM response/ reply to the Joint Staff J8 (if applicable).

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(2) An internal suspense will be applied that is two working days prior to the Joint Staff suspense. This provides the ECJ5-S Action Officer with sufficient time to compile the responses and prepare the HQ USEUCOM reply (memorandum for signature) back to the Joint Staff (J8/RAD). Typical J8/RAD staffing timelines (per CJCSI 3170.01) are:

(a) 35 days for an O-6 level review.

(b) 21 days for a Flag level review.

(3) The ECJ5-S Action Officer then tracks, coordinates, and assimilates any/all responses from the EUCOM staff and Components. If a staff agency or Component concurs with the document as written, a reply with "no comment" or "concur as written" is required.

(4) Electronic (E-mail) reponses/comments are recommended (in *line-in/line-out* format). On a Flag-Level review, an actual general/flag officer signature (endorsement) is not required. However, the staff agency or Component submitting the response/comment(s) must determine internally if their respective Director (general/flag officer) should endorse/sign the reply.

(5) The ECJ5-S Action Officer synthesizes all responses/comments and incorporates them into the HQ EUCOM reply to the Joint Staff (J8/RAD). This is accomplished in memorandum format, using the three categories for comments (Critical, Substantive, and Administrative). General comments are also accepted.

(6) The ECJ5-S Action Officer will then obtain proper level (O6 or Flag) approval and signature for the reply and forward it to the Joint Staff J8/RAD point of contact via SIPRNET.

FOR THE COMMANDER IN CHIEF:

OFFICIAL: MICHAEL A. CANAVAN
                                                    Lieutenant General, USA
                                                    Chief of Staff

DAVID R. ELLIS
LTC, USA
Adjutant General

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Appendices (excerpts from CJCSI 3170.01):
A - Requirements Generation System
B - Requirements Generation Process
C - Mission Need Statement (MNS) Generation Process
    Enclosure 1 - Mission Need Statement (MNS) Format
D - Capstone Requirements Document (CRD) Generation Process
    Enclosure 2 - Capstone Requirements Document (CRD) Format
E - Operational Requirements Document (ORD) Generation Process
    Enclosure 3 - Operational Requirements Document (ORD) Format
F - Abbreviations and Acronyms
G - Definitions

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Appendix A
Requirements Generation System

1. Requirements Generation System. The requirements generation system, along with the acquisition management system and the Planning, Programming, and Budgeting System (PPBS), form DOD's three principal decision support systems (see Figure 1). A close and effective interface among these systems is required to ensure quality products are acquired for the Nation's Armed Forces.
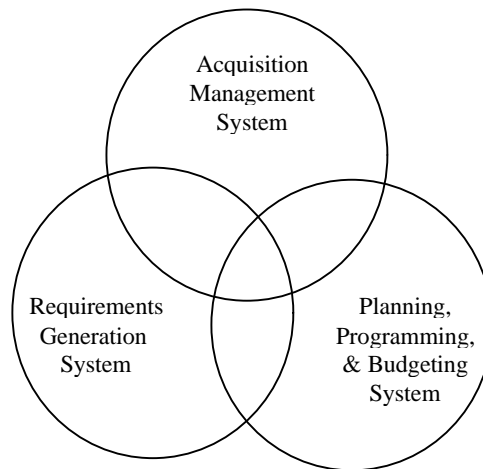

Figure 1. The Three DOD Decision Support Systems

The requirements generation system produces information for decision-makers on the projected mission needs of the warfighter. These mission needs are defined in broad operational terms in a Mission Need Statement (MNS) document. MNS are prepared for needs that develop into warfighter's operational requirements that could result in new Defense acquisition programs. Validation of the MNS confirms the fact that a non-materiel solution alone can not satisfy the identified need, and that a potential "new concept/system" materiel solution should be considered. Subsequently, the needs expressed in the MNS are developed into requirements by the Requirements Generation Process in the forms of Capstone Requirements Documents (CRD) (if required) and Operational Requirements Documents (ORD). CRDs provide ORD development guidance through validated performance based overarching capabilities for a mission area that forms a system of systems or family of systems. ORDs translate the MNS and (if applicable) CRD requirements into detailed, refined performance capabilities and characteristics of the proposed system. ORDs provide the specific requirements base for the Acquisition Management System and the PPBS for advanced Defense acquisition program development, programming and budgeting. (Figure 2) highlights the interface of the requirements and acquisition systems.
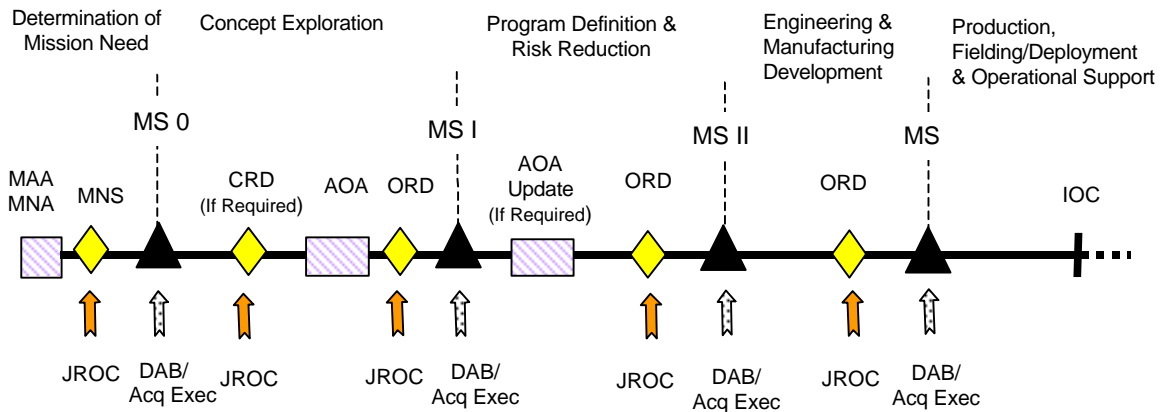
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Figure 2. Requirements and Acquisition Interface.

2. Two areas that will have significant impact on the future of the requirements generation system are joint requirements and DOD initiatives toward evolutionary acquisition which intends to provide quality products to the warfighter in a timely manner.

a. Joint Requirements. Joint requirements are requirements that impact more than one DOD component.   All C4I systems for purposes of compatibility and interoperability and integration are considered joint.   Programs having a Joint Potential Designator (JPD) of Joint or programs designated as "joint" will become more numerous over time and need to be developed with participation of all DOD components. Joint requirement responsibilities and procedures are addressed in the following enclosures of this instruction.

b. Time Phased Requirements in support of Evolutionary Acquisition. As DOD moves to reduce cycle time of traditional acquisition activities, through evolutionary acquisition, there needs to be an effective mechanism for specifying operational requirements to support this process. Time phased requirements is an approach to consider requirements in an incremental manner over time such that they match projected threat and technology to deliver systems to the field in increasing increments of capability.

Appendix B
Requirements Generation Process

1. Requirements Generation Process. The requirements generation process will be uniform throughout the Department of Defense. Specifically, the generation of requirements will consist of the following four distinct phases: definition, documentation, validation, and approval. As a system evolves from a MNS, to a CRD (if applicable), through ORDs, there are differences in what is accomplished in each phase. A general description of each phase is provided below while specific MNS, CRD, and ORD procedures for each phase are described in the appropriate appendices of this document.

   a. Definition Phase. The definition phase defines, analysis's, evaluates and justifies the development of a requirements document. For MNSs the evaluation is best accomplished by a Mission Area Analysis (MAA) and Mission Need Analysis (MNA) or equivalent DOD component process. CRDs can use concept development studies, analysis expanded from the MAA/MNA for the mission area, inputs from exercises, operational experience and experimentation. ORDs can use Analysis of Alternatives (AOA), demonstrations of military utility, and experimentation inputs.

   b. Documentation Phase. The formal preparation and initial DOD component review of required and standardized documents in support of a defined mission need is the documentation phase. The MNS is a non-system-specific statement of operational capability need written in broad operational terms. The CRD captures the overarching requirements for a mission area that forms a family-of-systems (FoS) (e.g. space control, theater missile defense, etc.) or System-of-Systems (SoS) (e.g. national missile defense). The ORD translates the MNS into more detailed and refined performance capabilities and characteristics of a proposed concept or system. Requirements evolution is depicted in Figure 3.
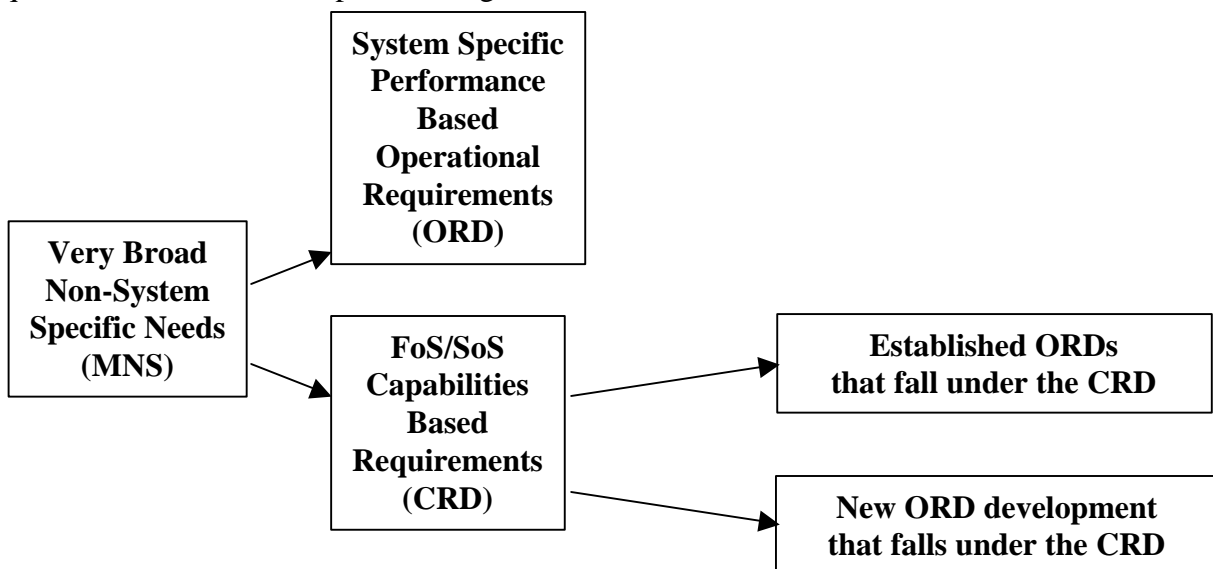

Figure 3. Requirements Documentation Evolution

   c. Validation Phase. The validation phase is the formal review process of a requirements document, by an operational authority other than the user, to confirm the identified need and

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operational requirement. The validation authority for MNSs, CRDs, and ORDs is dependent upon potential ACAT level and/or if a program is designated JROC special interest.

   d. Approval Phase. The approval phase documents the approval authority's concurrence with the final validated document. Approval is a formal sanction that the validation process is complete and the identified need or operational capabilities described in the documentation are valid. Approval authority is dependent upon potential ACAT level, if designated JROC special interest, or if approval authority has been delegated.

2. Responsibilities.

   a. JROC. Title 10, section 181, the DOD 5000 series, and CJCSI 5123.01, Charter of the JROC, specifically delineate the JROC's responsibilities. The JROC will assist the Chairman in identifying and assessing the priority of joint military requirements and acquisition programs to meet the National Military Strategy. The JROC reviews potential ACAT I/IA and JROC special interest programs to support the DAB/DOD CIO review process respectively. The JROC also assists the Chairman in considering alternatives to any acquisition program that has been identified to meet military requirements by evaluating performance, cost, and schedule. The JROC, at its discretion, may review any requirements document and ACAT II and below acquisition programs to resolve contentious or joint interest issues.

   b. Joint Staff and Defense Intelligence Agency (DIA). The Joint Staff and DIA provide an important review, coordination and certification function in support of the MNS, CRD, and ORD validation and approval process. These functions include interoperability certification; intelligence certification; threat validation; aviation munitions interoperability and munitions insensitivity certification and the staffing of all documents that the JROC reviews.

      (1) Director, J-2, Joint Staff and Director DIA. The J-2 is responsible for:

         (a) Threat Validation.

         (b) Intelligence Certification.

         (c) C4I Support Plans (C4ISP).

      (2) Director, J-3, Joint Staff. J-3 is the Office of Prime Responsibility for the Global Command and Control System (GCCS) and Common Operational Picture (COP). IAW CJCSI 6721.01, J-3 will review all GCCS functional requirements identified in ORDs.

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      (3) <u>Director, J-4, Joint Staff</u>. The J-4 is responsible for:

        (a) Aviation munitions.

        (b) Insensitive munitions.

        (c) Insensitive Munitions Waiver Requests.

      (4) <u>Director, J-6, Joint Staff</u>. The J-6 is responsible for:

        (a) Interoperability Certification.

        (b) C4I Support Plans.

      (5) <u>Director, J-7, Joint Staff</u>. As the Executive Agent for Joint Vision Implementation, J-7 will utilize the Joint Vision Master Implementation Plan to review recommendations resulting from Joint Experimentation that will affect joint doctrine, organizations, training and education, materiel, leadership, and personnel (DOTMLP). Recommendations indicating potential materiel solutions will be forwarded to the JROC for review.

      (6) <u>Director, J-8, Joint Staff</u>. DJ-8 is the appointed JROC Secretary whose staff makes up the JROC Secretariat.

   c. <u>Services</u>. Services will define mission needs and operational requirements and will develop and coordinate the documentation with the appropriate DOD components. The Service functions as validation and approval authority for Service-generated MNSs and ORDs ACAT II and below unless designated JROC special interest. A MNS validated by a CINC and forwarded for action to a Service does not need to be revalidated by the Service.

   d. <u>CINCs and Component Commands</u>.

      (1) Requirements Review. The CINCs will review and comment on all ACAT I/IA and JROC special interest documents that are validated and approved by the JROC. CINCs also are provided the opportunity to review and comment on ACAT II and below documents during the J2/J6 certification process.

      (2) <u>CINC-Generated Mission Need Statements</u>. The CINCs will forward all CINC-generated MNSs to the JROC for initial O-6 level review. USSOCCOM will retain validation and approval authority for all SOCOM MNSs that result in potential ACAT II and below programs. The preferred method for CINC MNS generation is for the CINCs to identify their mission needs to the responsible Service component commander or appropriate DOD agency. The component or agency will then coordinate the definition and documentation activities through their

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sponsoring Services or agency requirements system and keep the CINCs apprised of the status of the MNS.

(a) JROC approval. If the O-6 review recommends a JPD of "joint interest" or "joint," then the MNS will complete flag level review and will be forwarded to the JROC for validation and approval as outlined in Appendices B and C.

(b) CINC approval. If the O-6 Review recommends a JPD of "independent," then the MNSs will be returned to the sponsoring CINC for validation and approval. Upon approval, the CINC will forward the MNS to the appropriate Service or agency designated office responsible for the requirements generation system, which will forward the MNS to the component acquisition executive.

(3) CINC Field Assessments (CFA). The purpose of a CFA is to provide a deployed/employed CINC a rapid, tailored analysis in response to an emergent threat capability and to meet urgent priority information needs about fielded US force or system capabilities and/or vulnerabilities involving more than one service. The CINC Field Assessment process and submission criteria are described in CJCSI 3451.01.

(4) Joint Staff Assistance. Joint Staff assistance may be needed to support a CINC in the development of a mission need or in determining if a CINC generated MNS is redundant to a validated MNS or one under development. J8 RAD will be the POC on the Joint Staff for the CINCs to contact for assistance. Joint Warfighting Capabilities Assessment Teams (JWCA) and Joint Staff functional area experts can be designated to assist during the definition and documentation phase of MNS development. The intent is not to have the Joint Staff write the requirements document, but to see that responsible DOD components are identified to provide assistance. If required, the JROC will assign a DOD component as lead for CINC-generated MNS.

(5) Senior Warfighter Forum (SWARF). The JROC will address CINC issues and recommendations on the adequacy of requirements generation and investment strategies through the currently established JROC trips, and the requirements generation, acquisition, and PPBS processes. If a CINC identifies a joint requirements issue or resource mismatch, they can forward a request to the JROC to convene a SWARF. The SWARF is a JROC directed forum used to organize, analyze, prioritize, and build joint consensus on a complex resource and requirements issue for JROC approval. The JROC tasking memorandum will identify the SWARF lead, specific issue to be addressed, fiscal guidelines, assignment of the appropriate acquisition and technical expertise to frame issue, and timeline to report recommendation(s). The JROC will assign CINCs to lead SWARFs according to their missions and responsibilities. The SWARF lead will brief the recommendation(s) to the JROC.

(6) United States Special Operations Command (USSOCOM). Congress has given USCINCSOC specific Title 10 authority with a unique major force appropriation category.

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Therefore, USCINCSOC can establish, validate, and approve USSOCOM requirements and budget for ACAT II and below programs.

      (7) <u>United States Joint Forces Command Command (USJFCOM)</u>.

        (a) <u>Joint Experimentation</u>. USCINCUSJFCOM is designated the Executive Agent for conducting joint warfighting experimentation. USCINCJFCOM is responsible to the CJCS for creating and refining future Joint Warfighting Concepts and integration of Service efforts in support of JV2010 and future CJCS Joint Warfighting Visions. USJFCOM will conduct joint experimentation to explore, demonstrate and evaluate joint warfighting concepts. Experimentation will identify the breakthrough warfighting capabilities necessary to achieve JV2010 and future visions. Recommendations from joint experimentation having potential materiel solutions will be forwarded by USCINCACOM to the JROC for review. These recommendations could be the basis to conduct a joint mission need analysis that could lead to the development of a MNS or CRD.

        (b) <u>Interoperability</u>. USCINCJFCOM will serve as the Chairman's advocate for joint warfighting interoperability. USJFCOM will provide the warfighter perspective during the development of joint operational concepts to ensure that Joint Forces have interoperable systems. USJFCOM will support the Chairman in the following areas:

        (1) USJFCOM will coordinate with the Joint Staff J6 and ASD(C3I), co-chairs of the Joint Operational Architecture Working Group, along with the CINCs to continue development of the C4ISR Joint Operational Architecture (JOA). The objective of the C4ISR JOA is to enable joint force commanders and forces to achieve interoperable, integrated joint military operations employing the operational concepts of JV 2010.

        (2) USJFCOM will comment during the requirements staffing process on the adequacy of CRD and ACAT I/IA ORD Interoperability KPPs. The comments will provide the warfighter perspective on the adequacy of interoperability as addressed in the CRD or ORD. For ACAT I/IA and JROC special interest ORDS and CRDs, USJFCOM will have the opportunity to comment on unresolved interoperability issues at the JROC.

        (3) USJFCOM can comment on interoperability issues for ACAT II and below programs identified during the Joint Staff J6 interoperability certification process.

  e. <u>Defense Agencies</u>. Defense agencies may be tasked to manage acquisition programs. The agencies may develop their own MNSs as a DOD component or be asked to manage programs initiated by the CINCs or Services.

3. <u>Procedures</u>.

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Requirements Generation Process

a. <u>Standardization of Document Formats</u>. Requirements documents (MNSs, CRDs, and ORDs) will be uniform across all DOD organizations and apply to all acquisition categories. This standardization instills discipline in the process and provides both the validation and approval authorities, and the acquisition management system, with efficient and consistent information to use in reviews, certifications and decision deliberations. However for programs that do not go before the JROC, DOD Component ORD validation and approval authorities can amplify the format on a case-by-case basis to support their decision process. The MNS, CRD and ORD format is found in the appropriate appendices of this document.

b. <u>Document Submission</u>. All MNSs, CRDs, and ORDs that go to the JROC will be submitted to J-8 RAD through the DOD component JROC coordination organization. The document shall be the DOD component O-6 level coordinated position. The document shall be forwarded with a cover letter identifying the document, any schedule drivers, and a working level POC. Also, an executive summary of the analysis supporting the development of the document and specific analysis used in CRD/ORD KPP determination will be provided with the draft document. All documents going through the review process are considered draft and do not require a formal signature until after JROC validation and/or approval.

(1) Format. The submission shall be an electronic copy in MS Word Version 6.0 or higher and one hard copy.

(2) Joint C4I Program Assessment Tool (JCPAT). All ACAT II and below MNS/CRD/ORDs will be submitted by electronic copy to the JCPAT database to conduct the J2/J6 certification process. (The JCPAT SIPRNET website URF address is http://206.36.228.76). J8 and DISA are developing a plan to have all ACAT level documents submitted via the JCPAT. The JCPAT will be able to be utilized by DOD components to submit documents, comment for O-6/flag reviews, search for historical information and track current status of documents. J8 will provide formal notification via JROCSM to initiate this change in document submission for JROC review and the procedures for using the database.

c. <u>Formal Document Review Process</u>. Once a document enters the formal JROC 0-6 /Flag review process, it will be staffed to all Services, CINCs, Joint Staff and appropriate DOD agencies for review and comment. O-6 level staffing does not necessarily result in the final Service position. Flag-level endorsement of O-6 level comments is neither required nor desired. Comments should be identified as either critical, substantive or administrative. Convincing support for critical and substantive comments will be provided in a Comment/Justification format. Definitions are provided below:

Appendix B
Requirements Generation Process

CRITICAL. A critical comment indicates **non-concurrence** with the document, for both the O-6 and flag review, until the comment is satisfactorily resolved. If the non-concurrence is not resolved after flag review the document will proceed to the Joint Requirements Panel (JRP). The briefing to the JRP will outline the unresolved issue(s).

SUBSTANTIVE. A substantive comment is provided because a section in the document appears to be or is potentially unnecessary, incorrect, misleading, confusing, or inconsistent with other sections.

ADMINISTRATIVE. An administrative comment corrects what appears to be a typographical, format, or grammatical error.

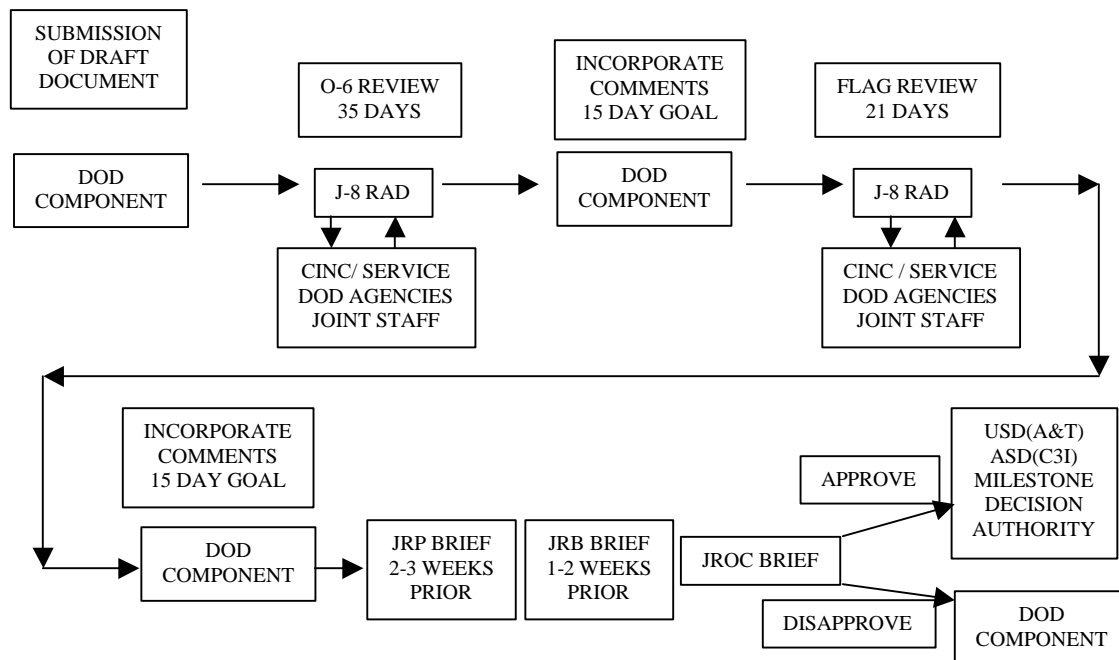Figure 4 depicts the review process steps for MNSs, CRDs and ORDs.

Figure 4. JROC Formal Review Process

(The description for these Steps can be found in CJCSI 3170.01, Enclosure B)

Appendix B
Requirements Generation Process

    d. <u>JROC Briefing Format and Schedule</u>. Briefings for the Joint Requirements Panel (JRP), Joint Requirements Board (JRB), and Joint Requirements Oversight Council (JROC) will be prepared in accordance with the JROC Administrative Guide. The DOD component will provide the draft document and briefing slides 48 hours prior to the JRP brief. The JROC should convene at least 30 days prior to the DAB or DOD CIO review to allow adequate time for Integrated Product Team (IPT) review.

4. <u>Automated Information Systems (AIS)</u>. Automated Information Systems are a combination of computer hardware and software, data, or telecommunications that performs functions such as collecting, processing, transmitting, and displaying information. Excluded are computer resources, both hardware and software, that are physically part of, dedicated to, or essential in real time to the mission performance of weapon systems. Given the potential joint nature of Automated Information Systems all AIS MNS/ORDs will be submitted through the Joint Staff J8 to determine if JROC review is warranted. (Figure 5) outlines the steps for determination of level of AIS coordination and review.
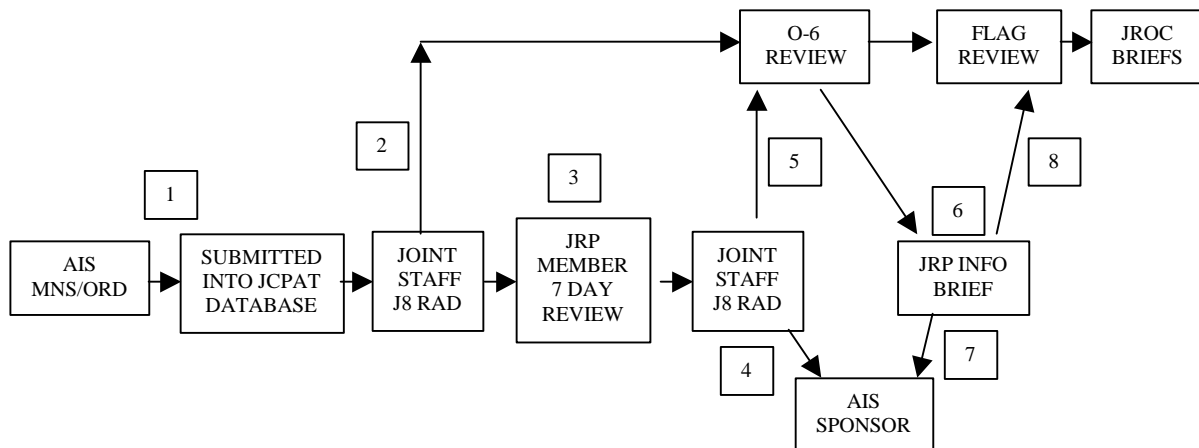

Figure 5. AIS review process

(The description for these Steps can be found in CJCSI 3170.01, Enclosure B)

Appendix C
Mission Need Statement (MNS) Generation Process

1. Mission Need Statements (MNS). The MNS is a non-system-specific statement of operational capability need written in broad operational terms. The four phases of the MNS generation process are depicted in Figure 6.
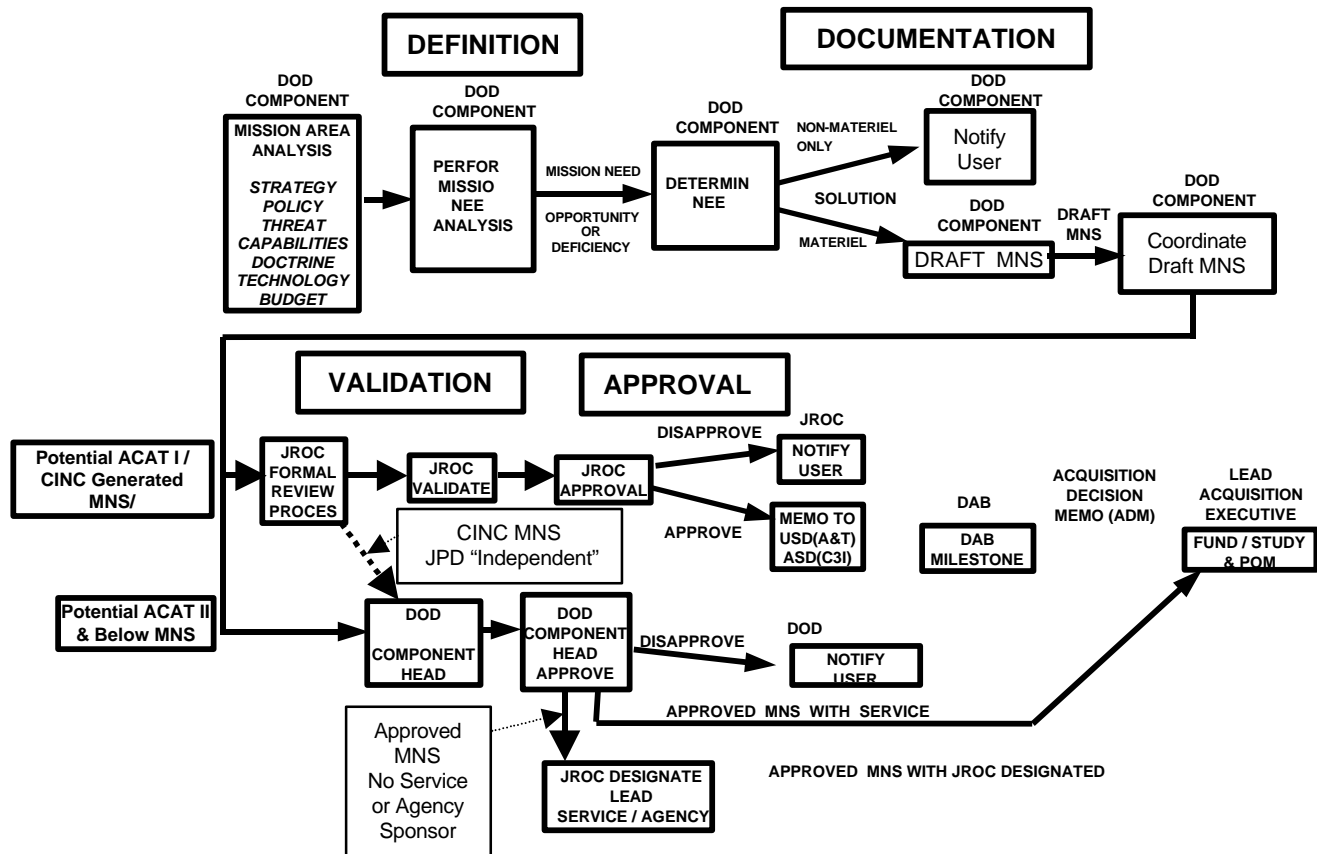

Figure 6. MNS Generation Process

a. MNS Definition Phase.   Identification of deficiencies and opportunities is a continuing process and normally begins with a review of the latest National Security Policy, National Military Strategy, Defense Planning Guidance (DPG), CINC Integrated Priority List (IPL), Joint Intelligence Guidance (if appropriate), and projected threats. This information should be incorporated into an assessment of the current and projected capability to accomplish assigned missions. This evaluation is best accomplished by a Mission Area Analysis (MAA).

(1) Mission Area Analysis (MAA). The MAA, or equivalent DOD component procedures, should identify capability deficiencies and the time frame that these deficiencies will exist. The MAA should use a "strategy–to–task" methodology (e.g., National Military Strategy to individual mission tasks) to identify the operational and support tasks needed to meet mission objectives.

Appendix C
Mission Need Statement (MNS) Generation Process

(2) <u>Mission Need Analysis (MNA)</u>. The MNA, or equivalent DOD component procedures, should be accomplished to evaluate the identified deficiencies using a task-to-need methodology to identify mission needs. This analysis must look across DOD component boundaries for solutions. The (JCPAT) database can be utilized to search for draft and validated MNSs to ensure unnecessary duplication of effort is avoided. The process may also begin with the identification of opportunities to exploit technology breakthroughs that provide new capabilities that address established needs, reduce ownership costs, or improve the effectiveness of current equipment and systems. Mission needs analysis should identify the time-based nature of the need and identify the specific time frame the need is expected to exist. If the need is to meet a current operational deficiency the MNA should state so. If the timing of the need is based on future threats or other activities (such as the planned retirement of an existing capability), these should be identified.

(a) <u>Non-material solutions</u>. Non-materiel solutions include changes in Doctrine, Organization, Training, Leadership, and Personnel (DOTL-P). If the need can be fulfilled by a non-materiel solution, the sponsor should refer it to the appropriate DOD component for action.

(b) <u>Material solutions</u>. If the MNA determines that a materiel solution should be pursued, the deficiencies or technological opportunities should be translated into a MNS expressed in broad operational terms. When a material solution is pursued non-material (DOTLP) changes will be required to support the program through development and fielding.

(3) <u>Joint Mission Area Analysis and Mission Need Analysis</u>. During the MAA/MNA process, if initial analysis indicates potential impact to the joint community the appropriate DOD components must be involved. The only difference between a MAA/MNA and Joint MAA/MNA is the scope and participation required to adequately conduct the analysis and assessment. . The intent of JMAA/JMNA is to have joint participation (CINC) during the initial assessments. CINCs should be contacted to participate during the working group meetings and can use their Service components to reach back into service generated assessments. The lead DOD component for Joint MAA/MNA development is responsible to ensure proper joint participation and documentation of all analysis to support MNS development and documentation.   Appendix B of this document outlines a sample organizational structure and template to conduct a Joint MNA.

b. <u>MNS Documentation Phase</u>. When a DOD component has determined that a materiel solution should be pursued, a MNS will be prepared. The MNS sponsor shall coordinate the draft document with the applicable DOD components before forwarding to the validation authority for formal review and coordination. If an existing JROC or DOD component validated MNS covers the mission need a new MNS will not be required. The MNS originator identifies what potential ACAT level the program may result in and whether it is a potential MDAP or MAIS. The document should use the format as outlined in Appendix A of this document and be no longer than five pages.

Appendix C
Mission Need Statement (MNS) Generation Process

    c. <u>MNS Validation Phase</u>. Validation of a MNS confirms that the mission need exists and cannot be satisfied by a non-materiel solution. As a minimum, the validation authority reviews the MNS, confirms that a non-materiel solution is not feasible, and assesses the Joint Service potential. CINC generated MNSs will be addressed per Appendix B. Validation is conducted by an authority other than the user and may take place at different organizational levels depending on MNS origination and potential program ACAT level.

        (1) <u>JROC Validation</u>. JROC validation begins with the formal review of the document for all potential ACAT I/IA and identified JROC Special Interest MNSs. The first step in obtaining validation is submission of the draft document for formal review as outlined in Appendix B. The sponsor will also provide an executive summary that describes the analysis process used to develop the draft document

        (2) <u>DOD Validation</u>. DOD component heads (or as delegated) will validate their own potential ACAT II and below MNSs not identified as JROC special interest or statement of need as identified through analysis and documented in the product of the Mission Need Analysis.

        (3) <u>Joint Potential Review/Designation</u>. The MNS sponsor will assess the joint potential for the MNSs as part of the initial validation process by coordinating the MNS with the Services. The sponsoring DOD component will assign a Joint Potential Designation (JPD) of independent, joint interest, or joint (as defined in the Glossary of this instruction) based on the input received during Service coordination.

    d. <u>MNS Approval Phase</u>.

        (1) <u>JROC approval</u>. The approval authority for all-potential ACAT I/IA and identified JROC special interest MNSs is the JROC. The JROC will make a recommendation on the joint potential designator (JPD) and the lead Service or agency for programs involving more than one DOD component. The approved MNS and appropriate recommendations will be forwarded, via JROCM, to USD (A&T) for consideration during the DAB, or to ASD (C3I) for consideration during the DOD CIO review. The JROC will determine whether CRD development is appropriate when they approve the MNS. The JROC may also make recommendations to CINCUSJFCOM for Joint Experimentation to facilitate concept development and clarify joint interoperability needs.

        (2) <u>DOD component approval</u>. The approval authority for potential ACAT II and below MNSs is the Chief/Director of a DOD component who will forward the MNS to the component acquisition authority.

Appendix C
Mission Need Statement (MNS) Generation Process

e. <u>Designation of Lead DOD Component</u>. Joint programs require the designation of a lead DOD component by the Milestone Decision Authority (MDA). The MDA makes the decision based on the recommendation of the JROC for potential MDAP and MAIS programs or of the Chief /Head of the DOD component for all other programs. The JROC will include its lead Service or agency recommendation to USD(A&T) for approved ACAT I MNS with joint potential and ASD(C3I) for appropriate ACAT IA MNS. DOD components lacking an acquisition structure and unable to obtain Service support (e.g., unified commands [other than USSOCOM], Joint Staff, and some Defense agencies) may forward potential ACAT II and below validated and approved MNSs to the JROC. The JROC will coordinate designation of a lead Service or agency and forward the MNS to that Service's MDA for action. A DOD agency may be designated as lead component.

f. <u>MNS Retirement</u>. In the event a JROC approved MNS is superseded or the mission need no longer exists, a MNS can be brought to the JROC for formal retirement. Requests for retiring a MNS with justification should be forwarded to the JROC Secretariat for staffing.

Enclosure 1
Mission Need Statement (MNS) Format

MISSION NEED STATEMENT
FOR
TITLE

Potential ACAT_____

DATE

1. <u>Defense Planning Guidance Element</u>. Identify the major program planning objective or section of the Defense Planning Guidance to which this need responds. Also reference the Joint Intelligence Guidance, DOD Strategic Plan (Quadrennial Defense Review), and Military Department long-range investment plans, if applicable.

2. <u>Mission and Threat Analyses</u>. Identify and describe the mission need or deficiency. Define the need in terms of mission, objectives, and general capabilities. Do not discuss the need in terms of equipment or system-specific performance characteristics. Discuss the Defense Intelligence Agency (DIA)-validated threat to be countered as well as the projected threat environment and the shortfalls of existing capabilities or systems in meeting these threats. Comment on the timing of the need and the general priority of this need relative to others in this mission area.

3. <u>Nonmateriel Alternatives</u>. Discuss the results of the mission needs analysis. Identify any changes in US or allied doctrine, operational concepts, tactics, organization, and training that were considered in the context of satisfying the deficiency. Describe why such changes were judged to be inadequate.

4. <u>Potential Materiel Alternatives</u>. Identify known systems or programs addressing similar needs that are deployed or are in development or production by any of the Services, Agencies, or allied nations. Discuss the potential for inter-Service or allied cooperation. Indicate potential areas of study for concept exploration including the use of existing US or allied military or commercial systems including modified commercial systems or product improvements of existing systems. Do not evaluate these alternatives.

5. <u>Constraints</u>. Describe, as applicable, key boundary conditions related to infrastructure support that may impact on satisfying the need: available facilities; logistics support; transportation; global geospatial information and services support; manpower, personnel, and training constraints; command, control, communications, and intelligence interfaces; security; standardization and interoperability within DOD components, North Atlantic Treaty Organization (NATO); other allies and friendly nations as well as U.S. government agencies and non-government organizations. Address the operational environments (including conventional; initial nuclear weapon effects; NBC Contamination (NBCC); electronic; and natural) in which the mission is expected to be accomplished. Define the level of desired mission capability in these environments.
6. <u>Joint Potential Designator</u>. Indicate the Joint Potential Designator established through the validation process.

Enclosure 1
Mission Need Statement (MNS) Format

<u>For Automated Information Systems (AIS) only.</u>
The following applies to non-warfighting AIS only

For AIS programs including National Security System (NSS) programs, the following additional information should be incorporated in the MNS format:

1. <u>Defense Planning Guidance Element</u>: Describe how the mission need relates to the OSD Principal Staff Assistant's (PSA's), DoD Chief Information Officer, and the DoD component strategic planning.

2. <u>Mission and Threat Analyses</u>: Describe the functional area or activity's current organization and operational environment, with emphasis on existing functional processes, including the concept of operation of the existing functional processes, procedures, and capabilities. Describe the shortfalls of existing capabilities.

    a. Describe quantitative benchmarks of process performance in terms of speed, productivity, and quality of outputs where comparable processes exist in the public or private sectors.

    b. Describe whether the function to be supported by the information technology should be performed by the organization that has identified the need or whether the function could be performed by a private sector source.

Appendix D
Capstone Requirements Document (CRD) Generation Process

1. <u>Capstone Requirements Document (CRD)</u>. The CRD captures the overarching requirements for a mission area that forms a family-of-systems (FoS) (e.g. space control, theater missile defense, etc.) or System-of-Systems (SoS) (e.g. national missile defense). CRDs are intended to guide the DOD components in developing mission needs and operational requirement documents for future and legacy systems. This will facilitate development of interoperable systems through validated performance based overarching capabilities described in the CRD. CRDs are inherently developed for a joint mission area; accordingly, requirements for a CRD must reflect the needs of the joint force commander. A CRD is appropriate when a mission area requires more than one ORD and when systems are developed by multiple DOD components.

   a. <u>Applicability</u>.   The requirements identified for a CRD apply to any DOD component involved in identifying and further articulating requirements for all MNS/ORDs that fall under the CRD. The four phases of the CRD generation process are depicted in (Figure 7)
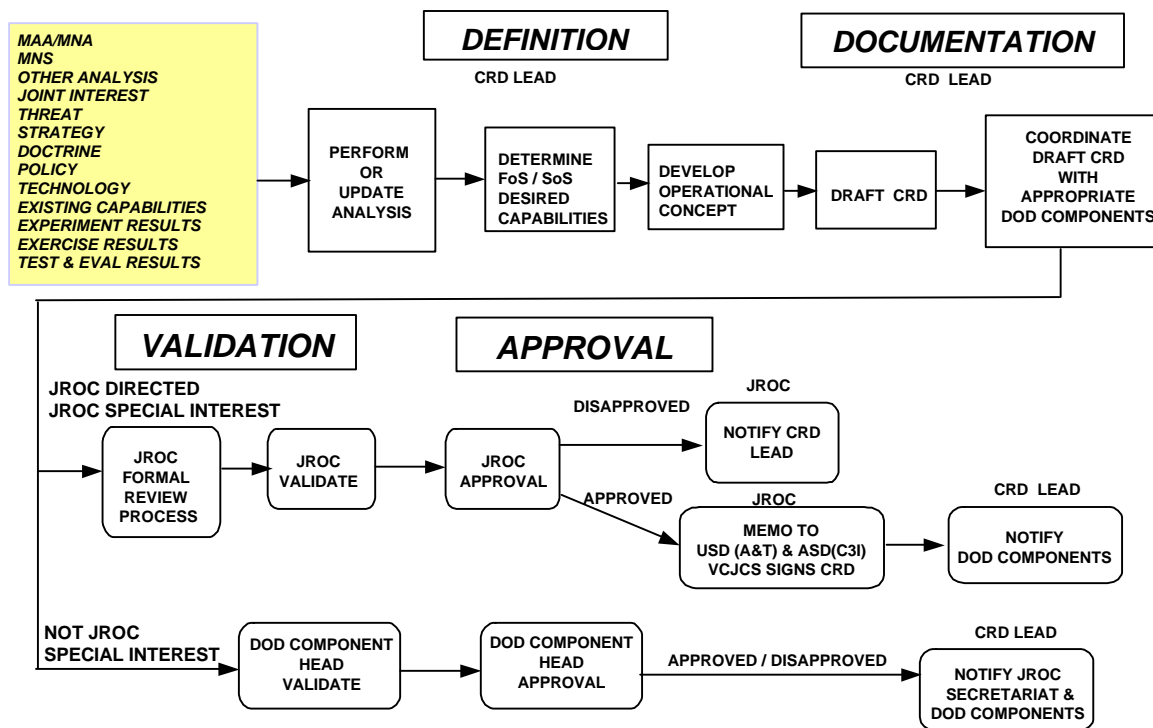

Figure 7. CRD Generation Process

Appendix D
Capstone Requirements Document (CRD) Generation Process

(1) CRD Initiation. CRD initiation is through JROC direction. A DOD component may recommend initiation of a CRD to the JROC during MNS validation and approval or USJFCOM may recommend initiation of a CRD as an output from Joint Experimentation. CRDs will not be developed for a mission need with limited scope or if the mission need falls under an existing CRD or one in development.

(2) JROC. The JROC will designate a CRD lead via JROCM. In the JROCM, the JROC will provide guidance to the CRD lead describing specific actions and timelines for CRD development. The <u>CRD lead</u> is responsible for developing, drafting, and sponsoring the CRD through the JROC validation and approval process. The CRD lead will identify all validated MNSs and ORDs that fall under the CRD. The JCPAT database and the initial CRD working group meetings should identify these documents. If the CRD lead identifies ACAT II and below programs under the CRD he can forward a recommendation to the JROC that a program be designated JROC special interest if appropriate. The CRD lead will accompany all MNS/ORDs, under the CRD, through the JROC and acquisition milestone reviews to ensure the CRD mission area capabilities and the ORD system functional and interoperability requirements are properly addressed.

(3) DOD components. DOD components may develop CRDs to manage a component unique FoS/SoS mission area. Prior to the CRD definition phase the DOD component will forward a memorandum to the JROC secretariat stating the title, mission area, and timeline of the proposed CRD (this will minimized the duplication and undesirable overlap if current CRDs exist for the mission area). All draft CRDs developed by DOD components will be submitted to J8 for review and determination for JROC special interest prior to validation and approval. J8 will use the AIS process for this determination. For those CRDs not designated JROC special interest, DOD components will be granted validation and approval authority.

b. <u>CRD Definition Phase</u>. A CRD must identify operational concepts, overarching capabilities, requirements for the mission area FoS, and the scope of the individual systems envisioned to compose the FoS. The CRD must identify criteria against which various combinations of systems and the contributions of individual systems can be evaluated.

(1) CRD Development. CRDs expand upon the capabilities and deficiencies identified in a MNS, or ties together requirements identified in multiple MNSs/ORDs. The analysis used in developing the CRD should take into account appropriate results and insights from previous assessments, operational experience, exercises, test and evaluation, experimentation, technology demonstrations and other sources that can identify the capabilities required for the FoS. The CRD should also identify the factors that drive the timing of the requirements such as retirement of existing systems or expected timing of a new threat.

Appendix D
Capstone Requirements Document (CRD) Generation Process

    c. <u>CRD Documentation Phase</u>. The CRD format is found in Enclosure 2. The CRD lead in coordination with the appropriate Services, CINCs, and DOD agencies will develop the proposed FoS capabilities. The CRD will include a description of the operational capability, threat, shortcomings of existing systems, and capabilities required for the family of systems.

      (1) <u>Operational capability</u>.

        (a) Defines the principal mission areas and functions that apply to the CRD (e.g. Missions under the TMD CRD include Ballistic Missile Defense, Ground-Based Anti-Air and Tactical Missile Defense, etc).

        (b) Defines secondary missions for those systems that have capabilities that support the CRD mission area.

        (c) Defines the CRD Family of Systems and the concept that requires how component systems are designed to interoperate with other component systems as a condition of membership in the family.

        (d) Defines the operational elements for the CRD mission area (e.g. TMD CRD operational elements included TMD C4I, attack operations, active defense, etc).

        (e) Defines the operational concepts for the CRD mission area. This includes the C4ISR (information exchange) operational concept which will support the development of the operational architecture for the mission area.

        (f) Defines the operational suitability and infrastructure support of the CRD mission area. Operational suitability is the degree to which a system supporting the mission area can be satisfactorily fielded, deployed, operated and sustained while meeting collective FoS performance parameters and the user's needs for system effectiveness.

      (2) <u>Threat</u>. Defines the principal threat for the CRD mission area (e.g. nature of threat, threat tactics, future threat capabilities, etc).

      (3) Shortcomings of existing systems. Defines shortcomings of fielded or planned capabilities to counter all anticipated threats (e.g. weapon system, interoperability, planning, etc). Describes why existing C4ISR operational and technical architectures cannot meet current or projected future (joint) requirements for the proposed FoS/SoS.

      (4) Capabilities Required. The CRD should identify the operational requirements which articulate the capabilities JFCs require to conduct operations within the CRD mission area. An operational requirement is a system capability or characteristic required to accomplish approved mission needs. The requirements shall have appropriate criteria and rationale for each, and be stated in threshold/objective if appropriate. A single overarching requirement transcends all

Appendix D
Capstone Requirements Document (CRD) Generation Process

others, all CRD systems must be interoperable. Timing of requirements should specify the time-based nature of the need and the events that are driving that need. Requirements other than interoperability that must be flowed down exactly or with some specific limits will be included and clearly stated in the CRD. One method to identify requirements is to list all the required capabilities for each operational elements for the CRD (see Figure 8).

Operational Element	Requirements
C4I	Combat ID capability Common Tactical Picture Signature Data Etc.
Attack Operations	BDA Weapon/Target Pairing Etc.
General	Transportation Modeling and Simulation Etc.
Etc.	

Figure 8. Example CRD requirements roll-up

(a) Information Exchange Requirements (IERs). The CRD lead needs to identify the essential IERs for the CRD FoS as described in (reference p). IERs identify the elements of warfighter information used in support of a particular activity and between any two activities. The requirements should reflect both the information needs necessary to satisfy the system(s) under consideration and the information this new capability can provide to enhance fielded systems.

(b) Interoperability. Joint Pub 1-02 definition 1 for Interoperability defines it as the ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together. Even though there are many facets of interoperability (e.g., fuel, ammunition, transportation, communications) that need to be identified in the CRD the focus for the interoperability CRD KPP will be the information exchange and level of interoperability for the CRDs systems information needs. The CRD IERs and Interoperability KPP will be the CRD leads guidance for future ORD C4ISR development and issues to be addressed in legacy systems. The IERs are one product that is required to support development of the C4ISR operational architecture for the CRD mission area and the continued evolution of the Joint C4ISR Operational Architecture (JOA). The development of the information exchange requirements should cover both the communication requirements for command and control of the CRD systems and the level of integration for cross system operations as depicted in Figure 9. Information Assurance (IA) is required for all DOD systems that are used to enter, process, store, display, or transmit DOD

Appendix D
Capstone Requirements Document (CRD) Generation Process

information regardless of classification or sensitivity. To assure balance or risk and gains, IA requirements must be co-developed and co-evolved with those for Information Interoperability.
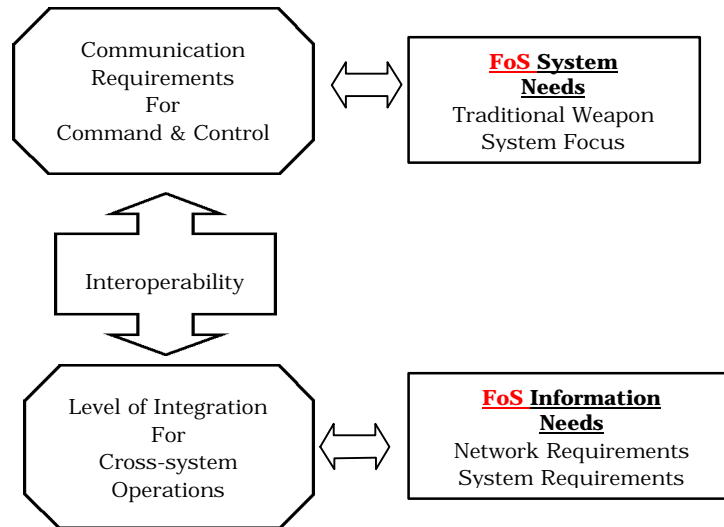

Figure 9. CRD Interoperability

(c) CRD Key Performance Parameters (KPP). A CRD KPP is a capability or characteristic so significant it is essential for defining the FoS required capabilities. CRD KPPs should be limited in number, output oriented, stated in Threshold/Objective format, and measurable to facilitate analysis of the progress in reaching the capabilities outlined in the CRD. The ORDs under the CRD must address the CRD KPPs relevant to the particular operational element they support. ORDs are not expected to address a CRD KPP if it does not apply to the proposed system.

(5) CRD KPP Development. Selection of valid KPPs is more than just identifying a requirement and providing a threshold/objective value. A KPP should be a roll-up of a number of supporting requirements listed in the CRD. All CRDs will have as a minimum an Interoperability KPP.   The steps and methodology to develop CRD KPPs can be found in CJCSI 3170.01.

(6) CRD Interoperability KPP. The CRD Interoperability KPP should define the level of integration for cross family of system operation. (e.g. TMD CRD C4I Interoperability KPP Criteria: The TMD FoS must have the ability to conduct collaborative planning, battle management, weapons coordination and engagement to support TMD operations at the joint operational and tactical levels. The TMD FoS must: possess a common interface among individual systems (T); migrate to full JTA compliance (O) (as applicable to individual systems)). The CRD Interoperability KPP will use IERs as the primary measure for interoperability and will outline the specific framework for CRD ORDs to follow.

d. <u>CRD Validation Phase</u>. The validation phase is the formal review process of the CRD by an operational authority other than the user.

Appendix D
Capstone Requirements Document (CRD) Generation Process

(1) JROC validation. The JROC has validation authority for all CRDs unless a DOD component has been granted validation and approval authority. Any CRD forwarded for JROC validation is considered to be a draft. The CRD lead will forward the draft document and a summary of the analysis used to support the CRD development. The first step in obtaining validation is the JROC formal review of the document. The formal review process is described in Appendix B.

(2) DOD component validation. The Chief/Director of a DOD component will validate component unique CRDs for which they have been granted validation and approval authority by the JROC.

   e. <u>CRD Approval Phase</u>.

(1) JROC approval. The approval authority for all CRDs is the JROC unless a DOD component has been granted validation and approval authority. Following CRD approval, the JROC Chairman will forward a JROCM to USD (A&T) and ASD (C3I) for information. The CRD lead will provide a signed copy of the CRD to the JROC secretariat for historical tracking.

(2) DOD component approval. The Chief/Director of a DOD component is the approval authority for component unique CRDs for which they have been granted validation and approval authority by the JROC. Following CRD approval, the DOD component will forward a signed copy of the CRD to the JROC secretariat for historical tracking.

   f. <u>CRD Review and Revalidation</u>. The CRD lead should review the document annually and update as necessary or when directed by the JROC. Significant changes in required capability, threat or doctrine are reasons for CRD update. Updated CRDs will be submitted to the approval authority for validation and approval.

Enclosure 2
Capstone Requirements Document (CRD) Format

CAPSTONE REQUIREMENTS DOCUMENT
FOR
TITLE

                                                                                    Date

1. <u>General Description of Operational Capability</u>.

Introduction
    - Describe CRD analysis and development process and DOD components that participated

Mission Area Description
    - Summarize the mission need
    - Identify all related documents that impact CRD (MNS or other CRDs) or are impacted by
the CRD (other CRDs or ORDs already in existence. State if any other CRDs will be superceded
or made obsolete by this CRD
    - Identify the possible implications for change to joint doctrine

CRD Family-of-Systems
    - Describe the FoS/SoS concept

CRD operational elements
    - Identify the operational elements that are required to support the CRD mission area

Operational Concept
    - Define the CRD mission operational concept
    - Define the C4ISR operational concept

Operational Suitability and Infrastructure Support
    - Define General and Specific guidance for suitability and infrastructure support
    - Define other Support considerations

2. <u>Threat.</u> Summarize the nature of the threat to be countered, threat tactics, and projected future
threat environment for the mission area. This threat information should reference Defense
Intelligence Agency (DIA) validated documents.

3. <u>Shortcomings in Mission Area and Existing systems.</u>

    - Describe the shortcomings or absence of existing capabilities and systems to fulfill the needs
of the mission area in the context of the postulated threat (e.g. weapon systems, interoperability,
planning, etc.).

    - Describe why existing C4ISR operational and technical architectures cannot meet current or
projected future (joint) requirements for the proposed FoS/SoS.

Enclosure 2
Capstone Requirements Document (CRD) Format

<u>Note:</u> The intent is not to build a CRD unique C4ISR architecture. Describe in detail the proposed missing piece of currently established architectures that needs to be addressed to accomplish the mission.

4. <u>Capabilities Required</u>. Describe the requirements for the CRD operational elements (see figure 10). Provide criteria and rationale for each requirement and identify the threshold/objective if appropriate.

Operational Element	Requirements
C4I (common to all pillars)	Combat ID Capability Surveilllance, Detection and tracking Common Operational Picture Spectrum supportability Bandwith Management/Capacity Etc.
Attack Operations	Attack Operations Effectiveness Attack Operations C4I Attack Operations RSTA Battle Damage Assessment Etc.
Active Defense	Active Defense C4I Engagement Assessment Autonomous Operations Etc.
Passive Defense	Impact Point Prediction Inducing Targeting Error Recovery and Reconstitution Etc.
General	Transportation Modeling and Simulation Minimum Operational Capabilities Information Warfare Electromagnetic Environmental effects (E3) Etc.

Figure 10. Example Requirement Summary

- Timing of requirements should specify the time-based nature of the need and the events that are driving that need.

- Develop the CRD KPPs. Figure 11 below provides example table summary.

Key Performance Parameter	Threshold and Objective
Interoperability	As appropriate
Combat ID	"
Early Warning	"
Etc.	"

Figure 11. Example KPP table summary

Enclosure 2
Capstone Requirements Document (CRD) Format

Appendices:

A: References
B: Distribution List
C: List of CRD supporting analysis

Glossary:

Part I: Abbreviations and Acronyms
Part II: Terms and Definitions

Tables:

A: Operational Element and supporting requirements summary
B: CRD KPP summary
C: As required.

Appendix E
Operational Requirements Document (ORD) Generation Process

1. Operational Requirements Document (ORD).

a. General. The ORD is a formatted document containing operational performance requirements for a proposed concept or system. The system proposed for continued evaluation in later acquisition phases shall be described in an initial ORD in terms that define the system capabilities needed to satisfy the mission need. The requirements, stated as operational performance parameters in the initial ORD, shall be tailored to the system (e.g., satellite, aircraft, ship, missile, or weapon, etc.) and reflect system-level performance capabilities such as range, probability of kill, platform survivability, and the timing of the need, etc. The four phases of the ORD generation process are depicted in Figure 12.
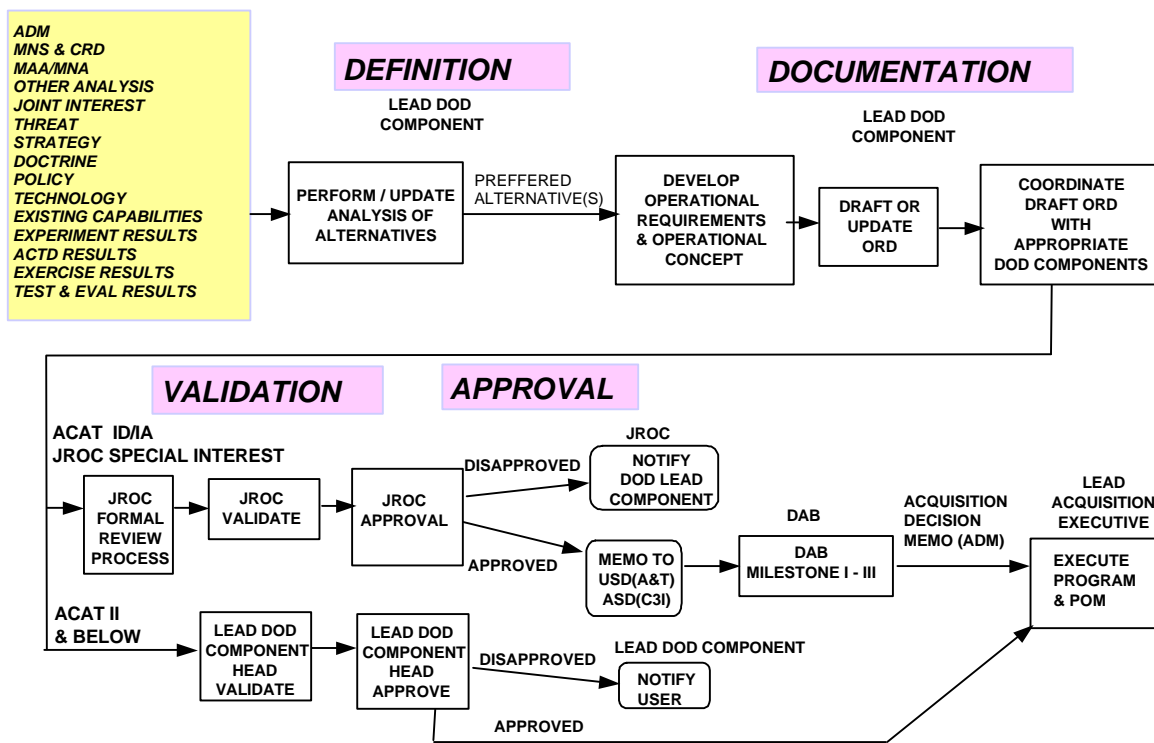

Figure 12. ORD Generation Process

b. ORD Definition Phase. The definition phase defines and justifies the development of a ORD. The ORD sponsor will apply Analysis-of-Alternatives (AOA), risk reduction demonstrations, military utility assessments, Advance Concept Technology Demonstrations (ACTD), experimentation, test and evaluation, and cost-schedule-performance tradeoff, requirements cost tradeoffs, and affordability analysis in the development of draft ORD requirements (especially KPPs). These parameters best characterize the most promising concept(s) to be pursued in a new acquisition program. Also, as DOD moves to reduce cycle time of traditional acquisition activities, through evolutionary acquisition, the ORD will serve as the vehicle for documenting successive operational requirements and managing the scope of that

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acquisition process. The ORD should also identify the factors that drive the timing of the requirements such as retirement of existing systems or expected timing of a new threat.

(1) Time Phased Requirements in support of Evolutionary Acquisition. Evolutionary acquisition is a streamlined acquisition strategy that fields a core capability, with a modular open structure and provides the addition of for future increments in capability upgrades. Time phased requirements support evolutionary acquisition in phases by allowing systems to be delivered to the field in increasing increments of capability. The future (follow on) increments are developed as blocks or models by the acquisition community as requirements are refined by the warfighter's increased understanding of the delivered capability, the evolving threat, and available technology. The proposed approach for subsequent incremental developments should be included in the acquisition strategy documents. Depending on the size and scope of the additional capability, some increments may need be covered by an annex to the existing ORD, may require a new ORD, or a manner agreed to by the JROC. Evolutionary acquisition plans should be consistent with other acquisition plans and developed by the acquisition community with the support of the user community. Evolutionary acquisition is a preferred approach, if appropriate. Automated Information Systems are prime candidates for evolutionary acquisition.

(2) Demonstrations to assess military utility. Military utility demonstrations such as Advanced Concept Technology Demonstrations (ACTD), requirements definition/technical demonstration activities during PDRR or experimentation should be considered for concurrent requirements generation and concept risk reduction. Military utility demonstrations should be conducted by the CINCs and Services to ensure user/warfighter involvement early in the requirements generation process. During PDRR the program may employ one or more design concepts to demonstrate technical maturity, facilitate analysis of alternatives, support CAIV trades and refine threshold and objectives initially stated as broad measures of effectiveness.

(a) Advanced Concept Technology Demonstrations. The goal of ACTDs is to assess the military utility of a significant new capability and to conduct that assessment at a scale size adequate to clearly establish operational utility and system integrity. The JROC will prioritize proposed ACTD candidates, together with proposed CINC sponsor and Lead Service/Agency. Once the ACTDs are prioritized the JROC will forward the prioritization with CINC sponsor and lead service or agency, via JROCM, to USD (A&T). This action equates to a mission need determination for each ACTD. The lead service is responsible to develop the Operational Requirements Document for ACTDs that have shown military utility and have been approved to transition to the formal acquisition process. The ACTD management plan should address the schedule for anticipated ORD development to ensure a smooth transition to the acquisition process. The JROC requests that if funding is insufficient to support the candidates in priority order, the JROC be consulted regarding the rationale for implementing the ACTDs out-of-priority order.

(3) CRD interface. DOD components will determine if the ORD they are developing falls under any existing CRD. If the ORD is under a CRD mission area then the ORD sponsor must

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work closely with the CRD lead during ORD definition and development. The JCPAT database and the Joint Staff J-8 will catalog all validated and approved CRDs.

    c. <u>ORD Documentation Phase</u>. The ORD format can in found appendix A of this enclosure. The ORD sponsor in coordination with the appropriate DOD components will prepare the ORD. The ORD provides a bridge that links the needs and capabilities identified in the MNS and CRD (if applicable) to the Acquisition Program Baseline (APB) and the contractual specifications for a program. The ORD should be written at the appropriate level to describe the system and is initially submitted at Milestone I with broad objectives and acceptable requirements. The initial ORD will include the evaluation of requirements based on commercial market potential required by reference (b). As a program is further defined between the acquisition milestones, the ORD is updated to reflect the results of analysis, experimentation, testing, technology insertion, CAIV and cost-schedule-performance trades. If the program falls under a CRD, the ORD will show linkage and the contribution to the appropriate CRD operational requirements and CRD KPPs. The ORD will include a description of operational capability, threat, shortcomings of existing systems and C4ISR architectures, capabilities required for the system, program support, force structure and schedule/program affordability for the system.

        (1) Description of Operational Capability.

            (a) Summarizes the mission need.

            (b) Describes the overall mission area(s) that the system will support. Identify the CRD(s) that impact the system (if appropriate).

            (c) Describes the type of system proposed.

            (d) Define the missions that the system will perform (e.g. CAS, SEAD, Interdiction, etc.)

            (e) Defines the operational and support concept(s) for the proposed system. This includes the C4ISR (information exchange) operational concept which will support the development of the C4ISR operational architecture for the proposed system.

            (f) Describes if fielding of increments (time phased) of system capability that support evolutionary acquisition is appropriate for the proposed system.

        (2) Threat. Defines the principal threat for the system (e.g. nature of threat, threat tactics, future threat capabilities, etc).

        (3) Shortcomings of existing systems and C4ISR architectures. Defines shortcomings of fielded systems to counter all anticipated threats (e.g. weapon system, interoperability, lift, etc).

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Describes why existing C4ISR operational and technical architectures cannot meet current or projected future (joint) information exchange requirements for the proposed system.

(4) Capabilities Required. The initial ORD will establish requirements describing the capabilities and characteristics of the proposed system. The requirements shall be written in output oriented and measurable terms in Threshold/Objective format (if appropriate), with criteria and rationale for each. The ORD shall identify the specific requirements contributing most significantly to the desired operational capability and provide a relative importance of meeting or exceeding each requirement threshold or objective value. This will be used to guide the acquisition community in making trade off decisions between the threshold and objective levels of the stated requirements. The ORD requirements and supporting rationale should be based on the preferred alternative(s) identified in the Analysis-of-Alternatives (AOA). The ORD requirements shall be refined at successive milestone decision points based upon (CAIV) trade-offs made during each phase of the acquisition process. One method to identify requirements is to list all the required capabilities for each mission area/function for the proposed system (see Figure 13).

Mission/Function	Capabilities required
CAS	Combat radius Targeting Payload Etc.
Defensive Counter Air	Maneuverability Acceleration Combat radius Etc.
C4ISR	Combat ID Situational Awareness Off board sensor inputs Etc.
Etc.	Etc.

Figure 13. Example ORD Capabilities required

(a) Information Exchange Requirements (IERs). The warfighter also needs to identify the essential IERs for the proposed system. IERs identify the elements of warfighter information used in support of a particular activity and between any two activities. These IERs identified should be the top-level requirements that identify the on-board and off-board informational needs for the system. The IERs will be extracted from the ORD along with the Interoperability KPP and utilized in the C4ISP as one of the tools used to develop the operational architecture for the system. The goal is to use established architectures for information exchange and identify unique system information requirements that can not be supported with current/projected architectures. The intent is to eliminate duplication and having individual systems creating their own (stovepiped) C4ISR architectures.

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        (b) <u>Interoperability</u>. Joint Pub 1-02 definition (2) for interoperability defines it as the condition achieved among communications-electronics systems or items of communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. Even though there are many facets of interoperability (e.g. fuel, ammunition, transportation, communications, etc) that need to be identified in the ORD the focus for the interoperability ORD KPP will be the information exchange to support the ORD system information needs. The intent is for the warfighter to outline the essential information exchange requirements for the system as described above. The requirements should reflect both the information needs necessary to satisfy the system under consideration and the information this new capability can provide to enhance fielded systems. The development of the information exchange requirements should cover both the communication requirements for command and control of the proposed system and the level of integration for cross system operations as depicted in Figure 14.
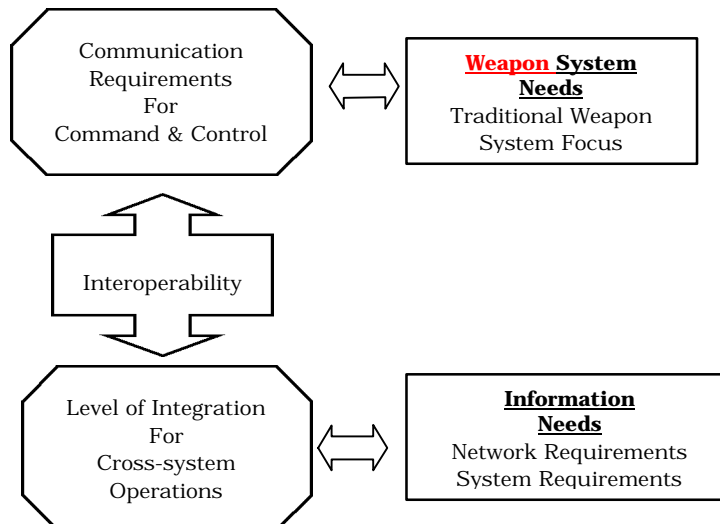

Figure 14. ORD Interoperability

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(c) ORD Key Performance Parameters (KPPs). ORD KPPs are those system capabilities or characteristics considered most essential for successful mission accomplishment. The ORD should only contain a limited number of KPPs (approximately 8 or fewer) that capture the parameters needed to reach the overall desired capabilities for the system. Failure to meet an ORD KPP threshold can be cause for the system selection to be reevaluated or the program to be reassessed or terminated. ORD KPPs are extracted from the ORD and included in the performance section of the Acquisition Program Baseline (APB) document at each Milestone beginning with Milestone I. ORDs will have an Interoperability KPP. The following guidelines should be applied when selecting KPPs:

-Is it essential for defining system or required capabilities?
-Is it warfighting oriented or does it contribute to the improvement in warfighting capabilities?
-Is it achievable/testable?
-Can the numbers/percentages be explained by analysis?
-If not met, are you willing to look at canceling the program?

(d) ORD KPP Development.   Selection of valid KPPs is more than just identifying a requirement and providing a threshold/objective value. A KPP should be a roll-up of a number of supporting requirements developed listed in the ORD. The following is one methodology for developing KPPs:

Step (1) List system required capabilities for each mission/function as described above.

Step (2) Prioritize these requirements.

Step (3) For each mission/function build one measurable performance parameter.

Step (4) Determine the parameters that are most critical to the system and designate them as Key Performance Parameters in the ORD.

Note: All missions/functions for the system to not need to create a KPP. Likewise, certain areas may create two or more KPPs.

(e) ORD Interoperability KPP. The ORD Interoperability KPP should define the level of interoperability for the proposed system. (e.g. PAC-3 ORD Interoperability KPP criteria: TADIL-J (T), Joint Composite Tracking Network (JCTN) (O)). The Interoperability KPP will be derived from the set of IERs that characterize the information exchanges to be performed by the proposed system. ORDs that come under the umbrella of a CRD should ensure compliance with the CRD Interoperability KPP.

(f) ORD sponsor/CRD lead interface. If the ORD falls under a CRD the ORD sponsor will work closely with the CRD lead to ensure ORD/CRD C4ISR interoperability.

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(5) <u>Program affordability</u>. Cost will be addressed in the ORD. Inclusion of cost allows the DoD component sponsor to emphasize affordability early in the proposed program. The cost figure should be stated in terms of a threshold and objective (not necessarily a KPP) in order to provide flexibility to allow for program evolution and CAIV trade studies. The DoD component sponsor may make cost a KPP if they desire and identify the cost it wishes to evaluate. The cost will be extracted from the ORD and included in the cost section of the APB.

d. <u>ORD Validation Phase</u>. The validation phase for an ORD includes the formal review of the document to confirm the operational requirements for the system. The validation authority for the ORD is dependent upon potential ACAT level and/or if a program is designated JROC special interest.

(1) JROC Validation.

(a) Milestone I. All ACAT I/IA and designated JROC special interest ORDs will be reviewed and their KPPs validated by the JROC at Milestone I.

(b) Milestone II/III. The JROC will review ACAT ID/IAM and JROC special interest ORDs at Milestone II and III to support each milestone decision. The JROC maintains validation authority for ACAT ID/IAM ORDs even if the JROC has delegated ORD approval authority to a DOD component. The JROC will also review the ACAT ID/IAM ORDs if a recommendation is made to change a KPP at any time during the life of a program. The JROC retains authority to review ACAT IC/IAC ORDs if there are changes to JROC validated KPPs, otherwise ACAT IC/IAC ORDs need not return to the JROC for Milestone II and III decisions.

(2) DOD Component Validation. The Chief/Head of a DOD component head (or as delegated) may validate their own ACAT IC/IAC and below ORDs at Milestone II and III, if ORD approval has been delegated to the DOD component and JROC validated KPPs are not changed.

(3) Formal ORD Review. The first step in obtaining validation is the formal review of the document. The review process is described in Appendix B. Any ORD forwarded for JROC validation is considered draft and must have supporting analysis for proposed KPPs along with the AOA, if appropriate, included in the package.

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e. <u>ORD Approval Phase</u>. The ORD approval phase documents the approval authority's concurrence with the final validated document. Approval authority is dependent upon potential ACAT level, if designated JROC special interest, or if approval authority has been delegated. Delegation of approval authority allows the designated lead DOD component, with coordination with the appropriate DOD components, to make requirements trades between acquisition Milestones without JROC approval. Key Performance Parameters or other specifically identified items by the JROC can not be changed without JROC approval.

(1) JROC approval.

(a) Milestone I. The approval authority, at Milestone I, for all potential ACAT I/IA ORDs and KPPs is the JROC. The JROC will normally delegate ORD approval authority for potential ACAT I/IA ORDs to the DOD component sponsor at the Milestone I JROC review. However, the JROC may retain approval authority for selected ACAT I programs. Following JROC approval, the JROC Chairman will forward a Milestone review and lead Service recommendation, including a list of Key Performance Parameters, to USD(A&T) via JROCM for consideration during the DAB or to ASD(C3I) for consideration during the DOD CIO review. If a JROC special interest program is not going to a DAB or DOD CIO review, the recommendations will be forwarded to the appropriate DOD component milestone decision authority.

(b) Milestone II/III. The JROC will approve ACAT ID/IAM and JROC special interest ORDs at Milestone II and III to support each milestone decision. If the JROC retained approval authority for an ACAT I/IA, or JROC special interest program, then the JROC will review the ORD and KPPs prior to each milestone.   The JROC Chairman will forward a Milestone review and lead Service recommendation, including a list of Key Performance Parameters, to USD(A&T) via JROCM for consideration during the DAB or to ASD(C3I) for consideration during the DOD CIO review.

(2) DOD component approval. The Chief/Head of the DOD component (or as delegated) are the approval authority ACAT IC/IAC, II and below ORDs if ORD approval has been delegated by the JROC at Milestone I. Approved ORDs are submitted by the approval authority to the appropriate DOD component MDA for action.

f. <u>ORD Review/Revalidation</u>. The ORD is refined and updated when necessary and prior to each acquisition milestone to incorporate results of the activities during each acquisition phase (i.e., cost, schedule, and performance trades, testing, and analysis of alternatives (AOA)). There is no need to update the MNS because the ORD builds upon this initial document. The ORD should be thoroughly reviewed by the DOD component sponsor, including other appropriate DOD components for joint program ORDs. Also, the ORD validation and approval authorities with assistance from the development and test communities will ensure the deficiencies and requirements are still valid when compared to the latest threat, guidance, and strategy documents.

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Also, the ORD should be vigorously scrubbed to ensure that the KPPs reflect the minimum essential requirements.

2. <u>Acquisition Program Baseline (APB) Procedures</u>. The APB contains the cost, schedule, and key performance parameters for the program. With progression through the requirements evolution and acquisition milestone process, the APBs will change focus from concept (Milestone I) to development (Milestone II) to production (Milestone III). KPPs from the ORD, combined with cost and schedule measures, will be included within the APB with their associated objectives and thresholds. APBs are prepared by the program manager. APBs are submitted with the required milestone documentation for Milestone I and each succeeding milestone. The KPPs objectives and thresholds in the APB must be validated by the appropriate authority before the MDA's review. The MDA is the approval authority for all APBs. Before all major milestone decision reviews for ACAT ID, ACAT IAM, JROC special interest programs and for all APB changes, the JROC will review the APB's cost, CAIV objectives, schedule, and key performance parameters (objectives and thresholds) to ensure they satisfy the mission need.

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OPERATIONAL REQUIREMENTS DOCUMENT
FOR
TITLE
ACAT _____
Prepared for Milestone ____ Decision

                                                                                        Date

1. <u>General Description of Operational Capability</u>.
     - Summarize the mission need. (If a documented MNS did not precede the ORD, explain the process that investigated alternatives for satisfying mission need).
        - Describe the overall mission area.
            - Identify CRD the proposed system falls under (if appropriate).
        - Describe the proposed system.
            - Describe the analysis that supports the proposed system.
        - Define the missions that the proposed system will be tasked to accomplish.
        - Describe the operations and suppport concepts summarizing the system's place on the future battlefield, its employment/operation, its organizational setting, and its sustaining and support interfaces.
        - Describe the C4ISR (information exchange) operational concept
        - Describe the benefits of Evolutionary Acquisition for proposed system (if appropriate). Requirements should be specified in terms of reasonable increments of capability described in the timeframes that will support evolutionary acquisition approach. The requirements must be time-based with the initial capability targeted for a 6 year IOC from program initiation. Requirements beyond the initial IOC must be specified in a time phased manner and be matched to projected threats. Only those initial requirements that can be validated by the user as needed within the FYDP, should be defined for the initial acquisition. Subsequent requirements would take into account achievements in capability from preceding blocks.

2. <u>Threat</u>. Summarize the threat to be countered and projected threat environment. (Reference DIA or Service Technical Intelligence Center approved documents. For potential MDAPs reference the DIA validated threat assessment).

3. <u>Shortcomings of Existing Systems and C4ISR architectures</u>.
     - Describe why existing systems cannot meet current or projected requirements.
     - Describe why existing C4ISR operational and technical architectures cannot meet the requirements for the proposed system.

4. <u>Capabilities required</u>.
     - Identify the operational performance parameters (capabilities and characteristics) required for the proposed system.

     - Articulate the requirements in output oriented, and measurable terms. Use Threshold/Objective format, and provide criteria and rationale for each requirement. Rationale

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should include mission unique environment for the system (e.g., wartime, peacetime, transition conditions).

    - Timing of requirements should specify the time-based nature of the need and the events that are driving that need.

    - <u>ORD Key Performance Parameters (KPPs)</u>. Develop the ORD KPPs as outlined in Appendix D. Figure 15 provides an example KPP table summary. Develop the ORD IERs matrix, in accordance with procedures described in the C4ISR Architecture Framework and from the IER matrix develop the Interoperability CRD KPP as outlined in Appendix D.

Key Performance Parameter	Threshold and Objective
Interoperability	As appropriate
Combat ID	"
Early Warning	"
Etc.	"

Figure 15. Example KPP table summary

    a. <u>System Performance</u>.

    - Describe mission scenarios (wartime and peacetime, if different) in terms of mission profiles, employment tactics, countermeasures, and environmental conditions (all inclusive: natural and man-made, e.g., weather, ocean acoustics, information warfare, etc.).

    - Identify system performance parameters such as range, accuracy, payload, speed, mission reliability, interoperability, etc. Recommend which parameter shall be considered a key performance parameter.

    b. <u>Information Exchange Requirements</u>. Identify the top level Information Exchange Requirements for the system for each mission area that the system is proposed to support (e.g., CAS, AAW, surveillance, reconnaissance) as described in Appendix E.

    c. <u>Logistics and Readiness</u>.

    - Include measures for mission-capable rate, operational availability, frequency and duration of preventive or scheduled maintenance actions, etc.

    - Describe in terms of mission requirements considering both wartime and peacetime logistics operations.

    - Identify combat support requirements including battle damage repair capability, mobility requirements, expected maintenance levels, and surge and mobilization objectives and capabilities.

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   d. <u>Other System Characteristics</u>. Characteristics that tend to be design, cost and risk drivers.
   - Address electronic attack (EA) and Wartime Reserve Modes (WARM) requirements.
   - Conventional, initial nuclear weapons effects, and nuclear, biological, and chemical contamination (NBCC) survivability.
   - Natural environmental factors (such as climatic, terrain, and oceanographic factors).
   - Unplanned stimuli (such as fast cook-off, bullet impact, and sympathetic detonation).
   - Address safety issues regarding Hazards of Electromagnetic Radiation to Ordnance (HERO).
   - Define the expected mission capability (e.g., full, percent degraded, etc.) in the various environments. Include applicable safety parameters such as those related to system, nuclear, explosive, and flight safety.
   - Identify physical and operational security needs.

5. <u>Program Support</u>. Establish support objectives for initial and full operational capability. Discuss interfacing systems (at the system/subsystem, platform, and force levels), specifically those related to command, control, communications, computers, and intelligence (C4I), transportation and basing, and standardization and interoperability. Assign a joint potential designation (joint, joint interest, or independent).

   a. <u>Maintenance Planning</u>. Identify maintenance tasks to be accomplished and time phasing for all levels of maintenance. Include programmed maintenance and surveillance inspections such as nuclear hardness and structural integrity. Describe the envisioned planning approach for contract versus organic repair.

   b. <u>Support Equipment</u>. Define the standard support equipment to be used by the system. Describe the test and fault isolation capabilities desired of automatic test equipment at all levels, expressed in terms of realistic and affordable probabilities and confidence levels.

   c. <u>C4I/Standardization, Interoperability, and Commonality</u>.
   - Describe how the system will be integrated into the command, control, communications, computers and intelligence architecture that is forecast to exist at the time the system will be fielded. Include impact on current/planned C4ISR infrastructure, including methodology for assessment.
   - Identify data and data fusion requirements (data, voice, video), computer network support, and anti-jam requirements.
   - Identify unique intelligence information requirements, including intelligence interfaces, communications, and data base support pertaining to target and mission planning activities, threat data, etc.
   - Describe considerations for joint use, NATO cross-servicing, etc.
   - Identify procedural and technical interfaces, and communications, protocols, and standards required to be incorporated to ensure compatibility and interoperability with other Service, joint Service, NATO and other allied and friendly nation systems.

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- The system must comply with applicable information technology standards contained in the DOD Joint Technical Architecture (JTA).
- Address interface requirements with Global Command and Control System (GCCS) or Common Operational Picture (COP) (reference j).
- Address Information Assurance (IA) that covers the defensive capabilities that provide for the availability, integrity, authentication, confidentiality, and non-repudiation of the information to be exchanged and used. IA should also include those characteristics needed for restoration through protection, detection, and reaction capabilities. To balance risks and gains, IA and Information Interoperability characteristics must be co-developed and co-evolved. This includes implementation of Public Key Infrastructure (PKI) required to ensure information security over all voice, video, and data transmission. Interconnection of systems operating at different classification levels shall be accomplished by process (e.g., Secret and Below Interoperability (SABI)) that have been approved by the DOD Chief Information Officer (CIO).
- Address energy standardization and efficiency needs for both fuels and electrical power as applicable.
- Address Electromagnetic Environmental Effects (E3) and Spectrum Supportability for systems and equipment.

    d. <u>Computer Resources</u>.
- Identify computer resource constraints (examples include language, computer, database, architecture, or interoperability constraints).
- Address all mission critical and support computer resources, including automated test equipment.
- Describe the capabilities desired for integrated computer resources support.
- Identify any unique user interface requirements, documentation needs, and special software certifications.

    e. <u>Human Systems Integration</u>. Address HSI domains to include:
- Establish broad manpower constraints for operators, maintainers, and support personnel.
- Identify requirements for manpower factors that impact system design (utilization rates, pilot-to-seat ratios, and maintenance ratios).
- Establish broad cognitive, physical, and sensory requirements for the operators, maintainers, or support personnel that contribute to, or constrain, total system performance.
- Establish requirements for human performance that will achieve effective human-system interfaces. Identify requirements for combining, modifying, or establishing new military occupational specialties.
- Describe the training concept to include requirements for training support package (e.g. simulators, training devices, embedded training), and training logistics. Include safety or health and critical errors that reduce job performance or system effectiveness given the operational environment. Determine objectives and thresholds for the above requirements, as appropriate.

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    f. <u>Other Logistics and Facilities Considerations</u>.
    - Describe the provisioning strategy for the system.
    - Specify any unique facility, shelter, supporting infrastructure, environmental compliance requirements, and associated costs and availability milestone schedule in support of the requirement.
    - Identify special packaging, handling, and transportation considerations.
    - Define unique data requirements such as engineering data for depot support and technical orders for the system and depot.

    g. <u>Transportation and Basing</u>. Describe how the system will be moved either to or within the theater. Identify any lift constraints. Detail the basing requirements (main and forward operating bases) and associated facilities needed for training.

    h. <u>Geospatial Information and Services</u>. Identify cartographic materials, digital topographic data, and geodetic data needed for system employment. Where possible, National Imagery & Mapping Agency standard military data shall be used.

    i. <u>Natural Environmental Support</u>. Identify the standard and unique weather, oceanographic, and astrogeophysical support required. Include data accuracy and forecast requirements.

6. <u>Force Structure</u>. Estimate the number of systems or subsystems needed, including spares and training units. This is only an estimate of the number of systems/subsystems needed, and will not serve as the definitive source for documenting the distribution or basis of issue. Identify units or platforms and quantities of these platforms (including other Services' or Government agencies' if appropriate) that will employ the systems or subsystems being developed and procured to satisfy this ORD.

7. <u>Schedule</u>. Define what actions, when complete, will constitute attainment of Initial and Full Operational Capability (leave flexible for these to be revised as the program is progressively defined and trade-off studies are completed).

    - Clearly specify the operational capability or level of performance necessary to declare Initial and Full Operational Capability. Include the number of operational systems, operational and support personnel, facilities, supporting infrastructure and organizational, intermediate, and depot support elements that must be in place. If availability in a specific timeframe is important, specify an objective for initial operational capability. Describe the impact if this objective is not achieved and identify a window of acceptability if appropriate.

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8. Program Affordability. Cost will be addressed in the ORD. Inclusion of cost allows the DOD component sponsor to emphasize affordability early in the proposed program. The cost figure should be stated in terms of a threshold and objective (not necessarily a KPP) in order to provide flexibility to allow for program evolution and CAIV trade studies. The DOD component sponsor may make cost a KPP if it desires and identify the cost it wishes to evaluate. The cost will be extracted from the ORD and included in the cost section of the APB.

Appendixes:
    A: References
    B: Distribution List
    C: List of ORD supporting analysis
    D: CRD(s) -ORD KPP/requirements cross walk/linkage (when CRD is applicable

Glossary:
    Part I: Abbreviations and Acronyms
    Part II: Terms and Definitions

Tables:
    A: ORD KPP summary
    B: Information Exchange Requirements Matrix

Appendix F
ABBREVIATIONS and ACRONYMS

ACAT	Acquisition Category
ACTD	Advanced Concept Technology Demonstration
AOA	Analysis of Alternatives
APB	Acquisition Program Baseline
AIS	Automated Information System
ASD(C3I)	Assistant Secretary of Defense (Command, Control, Communications and Intelligence)
C4	Command, Control, Communications, and Computers
C4I	Command, Control, Communications, Computers, and Intelligence
C4ISP	Command, Control, Communications, Computers, and Intelligence Support Plan
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CAIV	Cost as an Independent Variable
CRD	Capstone Requirements Document
DAB	Defense Acquisition Board
DIA	Defense Intelligence Agency
DODD	Department of Defense Directive
DPG	Defense Planning Guidance
FoS	Family of Systems
IER	Information Exchange Requirement
IOC	Initial Operational Capability
IPT	Integrated Product Team

Appendix F
ABBREVIATIONS and ACRONYMS

IT OIPT	Information Technology Overarching Integrated Product Team
JMAA	Joint Mission Area Analysis
JMNA	Joint Mission Need Analysis
JPD	Joint Potential Designator
JRB	Joint Requirements Board
JROC	Joint Requirements Oversight Council
JROCM	JROC memorandum
JROCSM	JROC Staff memorandum
JRP	Joint Requirements Panel
KPP	Key Performance Parameter
MAA	Mission Area Analysis
MAIS	Major Automated Information System
MCEB	Military Communications-Electronics Board
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Program
MIB	Military Intelligence Board
MNA	Mission Needs Analysis
MNS	Mission Need Statement
MOE	Measure of effectiveness
MS	Milestone
NATO	North Atlantic Treaty Organization
NBCC	Nuclear, Biological, and Chemical Contamination

Appendix F
ABBREVIATIONS and ACRONYMS

POC   Point of Contact

PSA   Principal Staff Assistant

ORD   Operational Requirements Document

RAD   Requirements and Acquisition Division

RDT&E   Research, Development, Test, and Evaluation

SoS   System of Systems

SSG   Senior Steering Group

SWARF   Senior Warfighting Forum

TEMP   Test and Evaluation Master Plan

USD(A&T)   Under Secretary of Defense for Acquisition and Technology

USJFCOM   United States Joint Forces Command (formerly Atlantic Command)

USSOCOM   United States Special Operations Command

Appendix G
DEFINITIONS

Acquisition Category (ACAT). Categories established to facilitate decentralized decision making and execution, and compliance with statutorily imposed requirements. The categories determine the level of review, decision authority, and applicable procedures. DOD 5000.2-R, part 1, provides the specific definition for each acquisition category (ACAT I through III).

ACAT I. A major defense acquisition program (MDAP) subject to Defense Acquisition Board oversight and estimated by the USD(A&T) to require an eventual total expenditure of more than $355 million in RDT&E funds, or $2.135 billion in procurement funds measured in FY1996 constant dollars.

ACAT ID. A major defense acquisition program (MDAP) for which the MDA is USD(A&T). The "D" refers to the Defense Acquisition Broad (DAB), which advises the USD(A&T) at major decision points

ACAT IC. A major defense acquisition program subject for which the MDA is the DOD Component Head, or if delegated, the DOD Component Acquisition Executive (CAE). The "C" refers to Component.

ACAT IA. A major automated information system (MAIS) acquisition program that is estimated to require program costs in any single year in excess of $30 million, total program costs in excess of $120 million, or total life cycle costs in excess of $360 million (FY 1996 constant dollars).

ACAT IAM. A major automated information system (MAIS) acquisition program for which the MDA is the Chief Information Officer (CIO) of the Department of Defense (DOD), the ASD(C3I).

ACAT IAC. A major automated information system acquisition program for which the DOD CIO has delegated milestone decision authority to the CAE or Component CIO. The "C" (in ACAT IAC) refers to Component.

Acquisition Program Baseline (APB). Each baseline is developed and updated by the program manager and will govern the activity in the phase succeeding the milestone for which it was developed. The Concept Baseline, Development Baseline, and Production Baseline are prepared at Milestone I, II, and III, respectively. APBs consist of three parts; section A--performance (contains KPPs), section B--schedule, and section C--cost.

Advanced Concept Technology Demonstration (ACTD). The primary goal of an ACTD is to assess the military utility of a significant new capability and to conduct the assessment as a scale size adequate to clearly establish operational utility and system integrity.

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Approval. The formal or official sanction of the identified need described in the
requirements documentation. Approval also certifies that the documentation has been
subject to the uniform process established by DOD 5000 series.

Analysis of Alternatives (AOA). The evaluation of the operational effectiveness and
estimated costs of alternative material systems to meet a mission need. The analysis
assesses the advantages and disadvantages of alternatives being considered to satisfy
requirements, to include the sensitivity of each alternative to possible changes in key
assumptions or variables. The AOA assists decisionmakers in selecting the most cost-
effective material alternative to satisfy a mission need.

Architecture. The structure of components, their relationships, and the principles and
guidelines governing their design and evolution over time.

Automated Information Systems (AIS). A combination of computer hardware and
software, data, telecommunications, that performs functions such as collecting, processing,
transmitting, and displaying information.   An AIS can include computer hardware only,
computer software only, or a combination of the above. Excluded are computer resources,
both hardware and software, that are physically part of, dedicated to , or essential in real
time to the mission performance of weapon systems.

C4I Support Plans.   The purpose of the C4ISP is to provide a window into a specific
system development program through which can be seen any shortfalls in the C4I required
for each phase of the system's life cycle.

Certification. Statement of adequacy provided by a responsible agency for a specific area of
concern in support of the validation process.

Capstone Requirements Document (CRD). A document that contains capabilities-based
requirements that facilitates the development of individual ORDs by providing a common
framework and operational concept to guide their development. It is an oversight tool for
overarching requirements for a system-of-systems or family-of-systems.

DOD Component. OSD, the Military Departments, the Chairman of the Joint Chiefs of
Staff (Joint Staff), the unified and specified commands (including US Element, NORAD),
Defense agencies, and DOD field activities.

DOD 5000 Series. Refers collectively to DODD 5000.1 and DOD 5000.2-R.

Family-of-Systems. A set or arrangement of independent systems that can be arranged or
interconnected in various ways to provide different capabilities. The mix of systems can be
tailored to provide desired capabilities dependent on the situation.

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Information Exchange Requirements. The requirement for information to be passed between and among forces, organizations, or administrative structures concerning ongoing activities. Information exchange requirements identify who exchanges what information with whom, as well as why the information is necessary and how that information will be used. The quality (i.e. frequency, timeliness, security) and quantity (i.e., volume, speed, and type of information such as data, voice, and video) are attributes of the information exchange included in the information exchange requirement.

Interoperability. 1) The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to make use the services, units, or forces and to use the services so exchanged to enable them to operate effectively together. 2) The condition achieved among communications-electronics systems or items of communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. The degree of interoperability should be defined when referring to specific cases.

Implementation. The publication of directives, instructions, regulations, and related documents that define responsibilities and authorities and establish the internal management processes necessary to implement the policies or procedures of a higher authority.

Joint Experimentation. An iterative process for developing and assessing concept-based hypotheses to identify and recommend the best value-added solutions for changes in doctrine, organizational training and education, materiel, leadership, and personnel required to achieve significant advances in future joint operational capabilities.

Joint Potential Designator (JPD). Used to describe the expected level of joint DOD component involvement.

    a. Independent. No potential for other Service use or systems interface or for joint development or procurement.

    b. Joint Interest. Joint program management is inappropriate, but a potential for other Service use or systems interface exists.

    c. Joint. A potential for joint program management, joint funding, and/or joint development or procurement exists.

Joint Requirements Oversight Council Memorandum (JROCM). Official JROC correspondence generally directed to an audience(s) external to the JROC. Usually decisional in nature.

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Joint Requirements Oversight Council Staff Memorandum (JROCSM). Official JROC correspondence generally utilized for internal staffing and tasking. Usually pre-decisional in nature and not releasable outside of JROC circles.

JROC Special Interest. Programs identified by the JROC Secretary as being of interest to the JROC for oversight even though they do not meet the ACAT I cost thresholds or have been designated as ACAT ID.

Key Performance Parameters (KPPs). They are those capabilities or characteristics considered most essential for successful mission accomplishment. Failure to meet an ORD KPP threshold can be cause for the concept or system selection to be reevaluated or the program to be reassessed or terminated. Failure to meet a CRD KPP threshold can be cause for the family-of-systems or system-of-systems concept to be reassessed or the contributions of the individual systems to be reassessed. KPPs are validated by the JROC. ORD KPPs are included in the APB.

Lead DOD Component. The Service or agency that has been formally designated as lead for a joint program by the MDA. The lead component is responsible for all common documentation, periodic reporting, and funding actions.

Major Automated Information System (MAIS) Program. An automated information system acquisition program that is estimated to require program costs in any single year in excess of $30 million, total program costs in excess of $120 million, or total life cycle costs in excess of $360 million (FY 1996 constant dollars).

Major Defense Acquisition Program (MDAP). An acquisition program that is not a highly sensitive classified program and is estimated by the USD(A&T) to require an eventual total expenditure of more than $355 million in RDT&E funds, $2.135 billion in procurement funds measured in FY 1996 constant dollars, or programs designated as an MDAP by the USD(A&T).

Materiel Solution. A defense acquisition program (non-developmental, modification of existing systems, or new program) that satisfies identified mission needs.

Milestones. Major decision points that separate the phases of an acquisition program.

Milestone Decision Authority. The individual designated in accordance with criteria established by the USD(A&T), or by the ASD(C3I) for AIS acquisition programs, to approve entry of an acquisition program into the next phase.

Military Department. Headed by a civilian Secretary appointed by the President and includes a Military Service (the Department of the Navy includes two Services).

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Military Service. Headed by a uniformed member who reports to the civilian Secretary heading the Military Department of which the Service is a part.

Mission Area Analysis (MAA). An analysis that uses a "strategy-to task" (e.g., National Military Strategy to individual mission tasks) methodology to identify the operational support tasks needed to achieve military objectives.

Mission Need. A deficiency in current capabilities or an opportunity to provide new capabilities (or enhance existing capabilities) through the use of new technologies. They are expressed in broad operational terms by the DOD components.

Mission Needs Analysis (MNA): An analysis designed to assess ones ability to accomplish the tasks identified during the MAA. The Analysis uses a task-to-need methodology to identify mission needs. It can also highlight technological opportunities and identify reliability and maintainability improvements that enhance warfighting capability.

Mission Need Statement (MNS). A formatted non-system-specific statement containing operational capability needs and written in broad operational terms. It describes required operational capabilities and constraints to be studied during the Concept Exploration and Definition Phase.

Non-major Defense Acquisition Program. Does not meet criteria for a MDAP. Further defined as ACAT II or III in DOD 5000.2-R, part 1.

Non-materiel Solution. Changes in doctrine, tactics, training, or organization to satisfy identified mission needs. MNSs with an identified non-materiel solution are sent to the Military Departments for consideration and action.

Objective. An operationally significant increment above the threshold. An objective value may be the same as the threshold when an operationally significant increment above the threshold is not significant or useful.

Operational Architecture View. A description (often graphical) of the tasks and activities, operational elements, and information flows required to accomplish or support a warfighting function.

Operational Requirements. A system capability or characteristic required to accomplish approved mission needs. Operational (including supportability) requirements are typically performance parameters, but they may also be derived from cost and schedule. For each parameter, an objective and threshold value must also be established.

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Operational Requirements Document (ORD). A formatted statement containing performance and related operational parameters for the proposed concept or system. Prepared by the user or user's representative at each milestone beginning with Milestone I.

Operational Validation Authority. Designated authority responsible for confirming the user's identified need and operational requirement. Designation of this operational validation authority is the responsibility of the MDA and will vary between DOD components and the ACAT level of the program.

Operator. An operational command or agency that employs the acquired system for the benefit of users. Operators may also be users.

Originator. A DOD component or operational command that initiates a MNS. The originator may or may not be the sponsor.

Principal Staff Assistant (PSA). Represents the user community in the functional area under their direction on acquisition and requirements matters. The OSD PSAs are the Under Secretaries of Defense (USDs), the Director of Defense Research and Engineering (DDR&E), the Assistant Secretaries of Defense (ASDs), the Director, Operational Test and Evaluation (DOT&E), the General Counsel of the Department of Defense (GC, DOD), the Inspector General of the Department of Defense (IG, DOD), the Assistants to the Secretary of Defense (ATSDs), and the OSD Directors or equivalents, who report directly to the Secretary or the Deputy Secretary of Defense.

Requirement. The need of an operational user, initially expressed in broad operational capability terms in the format of a MNS. It progressively evolves to system-specific performance requirements in the ORD.

Sponsor. The DOD component responsible for all common documentation, periodic reporting, and funding actions required to support the requirements and acquisition process.

Supplementation. The publication of directives, instructions, regulations, and related documents that add to, restrict, or otherwise modify the policies or procedures of a higher authority.

System Capabilities. Measures of performance such as range, lethality, maneuverability, and survivability.

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<u>System Characteristics</u>. Design features such as weight, fuel capacity, and size.
Characteristics are usually traceable to capabilities (e.g., hardening characteristics are
derived from a survival capability) and are frequently dictated by operational constraints
(e.g., carrier compatibility) and/or the intended operational environment (e.g., NBC).

<u>System-of-Systems</u>. A set or arrangement of systems that are related or connected to
provide a given capability. The loss of any part of the system will degrade the performance
or capabilities of the whole.

<u>System Architecture View.</u> A description, including graphics, of systems and
interconnections providing for or supporting warfighting functions.

<u>Senior Warfighting Forum</u>. JROC directed forum used to organize, analyze, prioritize, and
frame complex warfighter resource and requirements issues for JROC approval. JROC
tasking memo will identify the scope, sponsor and supporting agencies to frame issues.

<u>Technical Architecture View.</u>   A minimal set of rules governing the arrangement,
interaction, and interdependence of systems parts or elements, whose purpose is to ensure
that a conformant system satisfies a specified set of requirements.

<u>Threshold</u>. A minimum acceptable operational value below which the utility of the system
becomes questionable.

<u>User</u>. An operational command or agency that receives or will receive benefit from the
acquired system. CINCs and their Service component commands are the users. There may
be more than one user for a system. The Service component commands are seen as users
for systems required to organize, equip, and train forces for the CINCs. The Chiefs of the
Services and heads of other DOD components are validation and approval authorities and
are not viewed as users.

<u>User Representative</u>. A command or agency that has been formally designated by proper
authority to represent single or multiple users in the requirements and acquisition process.
The Services and the Service components of the CINCs are normally the user
representatives. There should only be one user representative for a system.

<u>Validation</u>. The review of documentation by an operational authority other than the user to
confirm the need or operational requirement. As a minimum, the operational validation
authority reviews the MNS, confirms that a nonmateriel solution is not feasible, assesses the
joint Service potential, and forwards a recommendation to the MDA for Milestone 0 action.
Validation is a necessary, but not sufficient, step for approval. This step appears identical
to approval in the case of a MNS, but the JROC may delegate final ORD approval authority
while retaining validation authority.